California. Dept. of Fish and Game.
Biennial Report 1895-1896.

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SISSON HATCHERY—Looking East.—CALIFORNIA FISH COMMISSION.

FOURTEENTH BIENNIAL REPORT

OF THE

STATE BOARD OF FISH COMMISSIONERS

OF THE

STATE OF CALIFORNIA,

FOR THE YEARS 1895-1896.

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COMMISSIONERS:

WILLIAM C. MURDOCH, - - - - - - - - - San Francisco.
H. F. EMERIC, *President*, - - - - - San Pablo, Contra Costa County.
J. M. MORRISON, - - - - - - - - - - - - Sacramento.

SACRAMENTO:
A. J. JOHNSTON, : : : : : SUPERINTENDENT STATE PRINTING.
1896.

California. Dept. of Fish and Game.
Biennial Report 1895-1896.

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California. Dept. of Fish and Game.
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REPORT.

To the Honorable JAMES H. BUDD, *Governor of the State of California:*

In conformity with law, the Board of Fish Commissioners of the State of California has the honor to submit its Fourteenth Biennial Report, being the record of its work from September 1, 1894, to September 1, 1896.

Hon. H. L. Macneil was forced by ill health to present to you his resignation in January, 1895, and Mr. H. F. Emeric was named by you, February 8, 1895, as his successor.

On February 25, 1895, Hon. J. D. Redding presented to you his resignation, which was accepted, and Mr. J. M. Morrison was appointed to succeed him on March 12, 1895.

Thereupon the Board met and elected H. F. Emeric president, and decided to move the office of the Commission to more commodious quarters, where its business could be more easily transacted. A suitable office was selected at No. 78, Flood Building, and cabinets procured for the library and specimens of native and introduced fish and birds. This collection, while yet small, is rapidly increasing and will furnish an object-lesson, valuable alike to fishermen, marketmen, and sportsmen. Through the generosity of the friends of the Commission suitable furnishings were presented and loaned, so that the office was fitted up in a very complete manner, and without expense to the State.

Meetings of the Board have been regularly held upon the second Monday of every month, and at such other times as the exigencies of the work demanded. A majority of the Board has been present at every meeting. Complete minutes of the meetings are on file in the office.

The work of this Commission is steadily increasing, and its field for usefulness so rapidly extending that much time is required to plan the work and properly attend to the various questions which are constantly demanding attention. We have followed the policy laid down by the first Board and adopted by every succeeding Board, both because the laws governing this Commission require us to do so, and because our greatest field of usefulness lies in that direction. We are greatly pleased to be able to present to you, in the following pages, the splendid results of this policy, and to demonstrate conclusively that the care and supervision of the commercial fisheries is worthy of the best efforts of this Board and will make returns a hundredfold to the people of the State.

We quote from "A Review of the History and Results of the Attempts

to Acclimatize Fish and other Water Animals in the Pacific States," by Dr. H. M. Smith, of the U. S. Commission of Fish and Fisheries, a gentleman who has made extended investigations throughout the State and thoroughly examined all of our waters, making investigations of the various branches of our commercial fisheries :

"The zealous efforts of the Fish Commissioners of California to increase the quantity and variety of food and game fishes of the State deserve special recognition. For more than twenty-five years the energies of the Commission have been almost constantly directed to the acclimatization of desirable fishes inhabiting the waters of the Eastern States. Their remarkable success when acting on their own behalf and in conjunction with the New York Commission and the U. S. Fish Commission entitles them to the great credit and praise which they have received both from the inhabitants of California and from the people of other States and foreign countries." (p. 380.)

This quotation is not made with the idea of self-congratulation or laudation, but to show that the policy laid down by the State's first Board of Fish Commissioners is the policy which receives the highest commendation from the men who are the best posted in the value of this work, and thoroughly able to express an opinion.

It has also been our aim, so far as was in our power, to protect and care for the game and game-fish interests of the State, believing that they are of great importance; and, as the following pages will show, demand more attention and better protection than has heretofore obtained. We have, during the last two years, by watching the chief market centers and sending men into districts where violations were reported, made many arrests and put a stop to much illegal work.

We have caused certain statistics pertaining to our fisheries to be compiled. They are included in this report, and give much valuable information regarding the catch of our commercial fishes. We also present statistics, which will be found of interest, showing the value and amount of game handled in San Francisco and Los Angeles markets, during the season 1895–96.

We have increased our fish hatcheries by the addition of the Battle Creek, Tallac, and Wawona stations, and are now much better equipped than ever before, and better able to carry on the work of re-stocking and increasing the output of our streams and lakes.

The splendid location of the Battle Creek hatchery makes it possible to take and hatch an unlimited number of salmon eggs; and, although obliged to stop last fall in the middle of the work for want of a place to eye the eggs, we have placed to our credit in one year the largest plant of salmon fry ever made by the State in any previous four years—14,283,180.

The location of the Wawona hatchery fills a long-felt want, and makes it possible to reach the magnificent waters in and about the Yosemite National Park without the long, tiresome, and unprofitable trip from any one of our other hatcheries.

We have granted all applications for fish for public waters in so far as they were suitable for the varieties asked for; but so great a demand has been made upon us in this direction that the supply has not been equal to it, even with the increased output never before equaled.

Total Output For—	1895.	1896.
Eggs	383,000	1,141,000
Fry	7,391,700	18,351,833
Adults and yearlings	1,239	5,209
Totals	7,775,939	19,498,042

Total output for two years ..... 27,273,981.

The remarkable success of the plant of Eastern fresh-water fishes in Lake Cuyamaca, San Diego County, in 1891, would indicate that these varieties, which are held in high esteem as food and game fishes throughout the East, as well as others introduced here, will find congenial waters in our State, thereby adding to our already large variety of fishes, and making our waters more productive.

Efforts have been made to introduce desirable mollusks and crustaceans from one part of the State to another, with the hope of increasing the range of these species, and consequently the supply.

The sawdust question in the Truckee River has demanded attention, and we are glad to report that this stream, as well as others, has been kept free from pollution.

The ladders upon dams have been frequently inspected, and kept in repair. Such arrangements have been made that but few, if any, dams are unprovided with ladders at the present time.

The policy of retaining the trained and capable men who have been employed in the work for many years, has enabled the Commission's work to proceed without interruption, and has been the means of saving many dollars to the State. We believe that this Commission should be operated under civil service rules, as it will incite the men employed to more careful and better work, knowing that they will be retained so long as they are faithful and attentive.

We have designed to conduct the business of the Commission on business lines, and have, we believe, made the best possible use of the money appropriated. The amount has many times seemed inadequate, and we have been obliged to temporarily retire some of our men until such time as our finances would permit their re-instatement.

The resources and expenditures of this Commission have been as follows:

Forty-sixth Fiscal Year.

	Resources.	Disbursements.
Support and Maintenance of State Hatcheries—		
Appropriation	$7,500 00	$7,500 00
Restoration and Preservation of Fish—		
Balance on hand	150 00	
Appropriation	10,000 00	10,150 00
Fish Commission Fund—		
Balance on hand	1,379 24	
Receipts from licenses, fines, etc.	5,225 92	
Amount expended		4,737 72
Balance on hand		1,867 44
Totals	$24,255 16	$24,255 16

Forty-seventh Fiscal Year.

Support and Maintenance of State Hatcheries—		
Appropriation	$7,500 00	$7,500 00
Restoration and Preservation of Fish and Game—		
Appropriation	10,000 00	10,000 00
Fish Commission Fund—		
Balance on hand	1,867 44	
Receipts from licenses, etc.	5,671 90	
Amount expended		5,874 89
Balance on hand		1,664 45
Totals	$25,039 34	$25,039 34

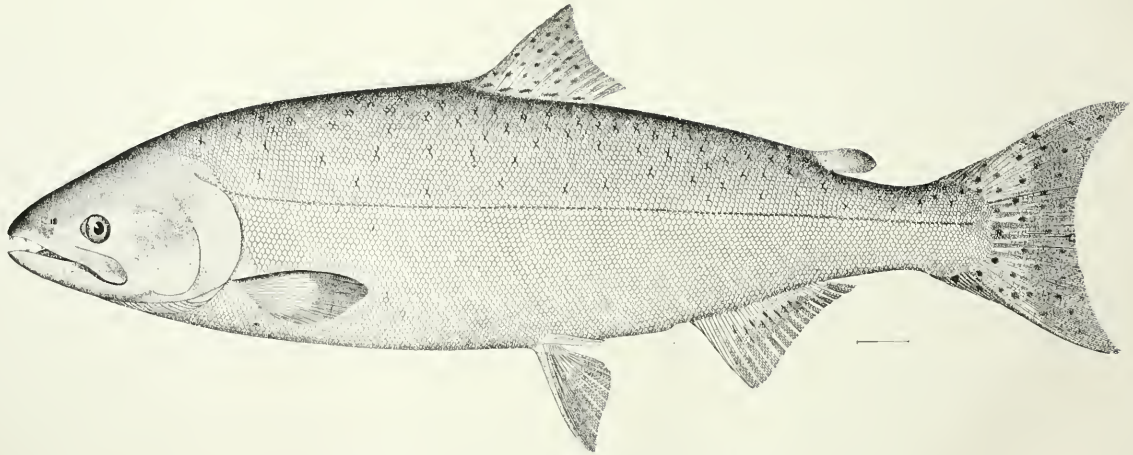
In the Appendix will be found a statement of all the bills passed by this Board and allowed by the Board of Examiners. This statement shows to whom and for what purpose the money was paid. Duplicates of all bills are on file in this office giving in detail the uses to which our funds have been put.

Having thus given a résumé of the work under our supervision, we invite your attention to the details which follow, as well as to many subjects and incidents connected with our fisheries, and to the other matters with which we have had to deal.

COMMERCIAL FISHERIES.

We are pleased to report that the increase in the fishery industry, shown in the Thirteenth Biennial Report of the California Fish Commission, has continued during the last two years, although the fisherfolk have suffered in some measure, owing to the hard times which have affected every industry.

We regret our inability to present the actual increase. Our resources do not admit of a sufficiently thorough investigation of all its branches to enable us to make complete statistics. The U. S. Commission of Fish and Fisheries have not taken a complete census since 1892, but are now completing one for the year 1895. The results of the census of 1892 were embodied in the last report of the California Fish Commission.



QUINNAT SALMON.—*Onchorhynchus chouicha.*

Mr. W. A. Wilcox, of the U. S. Commission of Fish and Fisheries, in his treatise entitled "The Fisheries of the Pacific Coast," says:

"The growth of the industry of late years has been marked, and the near future will doubtless witness an advance in the relative position of California at the expense of several of the east-coast States. Considering the entire country, the rank of California as a fishing State is six; in the value of its products it is surpassed only by Massachusetts, Maryland, New York, New Jersey, and Virginia." (p. 147.)

We take the following totals from a table prepared by him, which show the products of the fisheries of California:

	Pounds.	Value.
1889	53,505,055	$2,465,317
1890	53,330,194	2,592,826
1891	52,483,906	3,031,430
1892	57,838,466	3,022,991

That the fisheries of the State are constantly developing along broader lines is beyond question, and the fishermen and people generally are coming to appreciate the value of fostering this industry, and are urging the Commission to extend its investigation and its protecting power to branches which they never before deemed in need of protection, because of the seemingly limitless store from which the supply was being drawn.

If at any time there has been a question as to the needs and results of the artificial propagation of both fresh and salt water fishes, that time has passed, for it is no longer a supposition but an established fact that this work makes enormous returns for the money expended. The results of this work are everywhere apparent, and nowhere more so than in California, and the people generally are alive to the necessity and demand for it.

Dr. H. M. Smith, of the U. S. Commission of Fish and Fisheries, says, in his "Notes on a Reconnoissance of the Fisheries of the Pacific Coast of the United States in 1894":

"In no other region in the United States are the people more generally impressed with the beneficial results of artificial propagation and more ready to aid and approve any fish-cultural measures that are properly recommended. While the results of salmon culture have in some places been marked and are readily acknowledged by fishermen and others, this alone is not sufficient to account for the widespread advocacy of fish culture which exists among all classes and in all parts of the Pacific Coast. We must look further for the cause. There seems little reason to doubt that to the marvelous success of shad and striped bass acclimatization on the west coast must be attributed the firm belief in fish-cultural work that pervades all localities in which fish is an article of food or an object of capture. One or both of these new species are well known in almost every Pacific Coast settlement, and they are an enduring testimony to the influence of man over fish production." (p. 226.)

SALMON.

It has been the purpose of this Board to increase the productiveness of the salmon fishery, which is our most important branch. Aided by the extended close season granted by the last Legislature, we were enabled to plant in our waters a greater number of young fish than ever before. The following table, showing

the yearly increase in the receipts of fish in the San Francisco markets, must be attributed to the planting of fry in former years:

Salmon Received in the San Francisco Market.

Month.	1893.	1894.	1895.	1896.
January	137,460	128,556	161,641	168,366
February	93,263	103,801	146,250	173,278
March	139,401	163,131	155,791	197,043
April	374,478	211,552	365,387	301,964
May	325,170	242,126	401,787	291,310
June	70,216	138,675	161,989	134,922
	1,139,988	987,841	1,392,845	1,266,883
July	149,217	117,516	115,592	
August	575,609	576,991	447,094	
September				
October	249,753	403,340		
November	183,789	276,768	431,453	
December	155,090	192,153	326,474	
Totals	2,453,446	2,554,609	2,713,458	

While the yearly increase is not large, it shows a healthy growth, and establishes the fact that this fishery can, with proper protection and the re-stocking of our waters, be restored to its former splendid condition, when the annual catch amounted to ten millions of pounds instead of four.

It must be borne in mind that the success at Battle Creek station is due entirely to the extension of the close season. Until October was included in the close season, the salmon that had successfully passed the bays and lower river during the month of September were legally taken by the ton from their spawning-beds, or in the deep pools of the Sacramento River in Tehama and Shasta counties, though the fish were unfit for food and had not accomplished the purpose for which the State had guarded their ascent of the river. The addition of the month of October to the close season was timely and is of vital importance in the efforts of the Commission to restore the supply of salmon. The Board met with no opposition to its efforts to enforce the observance of the extended close season in the region of the upper Sacramento and in Humboldt County. This change meets with the approval of the people of those sections, as well as of the fish-dealers of the San Francisco market, all of whom have evinced a genuine interest in the efforts of the Commission to increase the run of our most valuable fish. In Del Norte County, however, the efforts of the Board to enforce this law were made abortive by the action of the local authorities, the Board of Supervisors assuming to make regulations in conflict with the State law, and the District Attorney instructing the Justices of the Peace to refuse to issue warrants, and refusing himself to prosecute arrested offenders. Our deputy was withdrawn and the matter was called to the attention of the Attorney-Gen-

eral. The people of that county will alone be the sufferers, since the fisheries there supply only the local demand.

For some reason the run of salmon in the Sacramento River in 1895 was affected (presumably from high temperature or a rise of water) so that, instead of being heaviest during the month of August, it was only well started when the season closed. This condition obtained in 1896, but in a more marked degree. The early or spring run of fish was also affected by some cause. The salmon appeared in considerable numbers in the river as early as January, and continued to come through February and March, in consequence of which the April run of fish did not show the decided increase of former years, though there was an increase in the total take for the first six months.

SALMON CANNED.

Owing to the varied run, the canneries did not pack as many salmon, as the following table will show. The figures for the years previous to 1895, in all of the tables, were taken from the biennial report of the California Fish Commission for the years 1893–94:

Salmon Pack of the Sacramento River.

Year.	Pounds.	Cases.
1888	4,039,200	61,200
1890	1,618,471	25,065
1891	672,121	10,353
1892	170,425	2,281
1893	1,496,927	23,336
1894	1,940,009	28,463
1895	1,637,025	25,185
1896	870,155	13,387

It would be advantageous for the State to cause an investigation by trained scientists of the habits of the young salmon after reaching the river from the small creeks on their way to the sea. Such an investigation, combined with intelligent observations upon the fish-food to be found in our larger interior waters, might lead to information that would be of material help in the restoration of salmon and the development of other valuable food-fisheries. It would seem advisable, therefore, that the Legislature should make a small appropriation for such scientific investigation, placing the appropriation in the hands of the Board, or of Dr. David Starr Jordan, of Stanford University, who, as is well known, stands high as an authority on the habits of fishes.

SEALS.

The number of seals near the Seal Rocks, lying off Point Lobos, City and County of San Francisco, has so greatly increased under the protection afforded them by an Act of Congress relating to the control and care of the rocks that they very seriously interfere with the fishermen who carry on their vocation in the Bay of San Francisco and its tributary waters. Many schools of fish seeking entrance to spawning-beds are scattered by these seals.

When the salmon come in from the open sea they are set upon, and many schools are broken up and driven back; and only when compelled by the demands of nature do they gather in sufficient numbers to force an entrance to the bays and lower rivers. Thus is the run of this valuable fish lessened and delayed. Their devastations do not cease here, as the seals follow in the wake of the fish, ascending as high as the waters of Suisun Bay and the lower Sacramento and San Joaquin rivers, where the principal fishing-grounds for salmon, striped bass, and shad are found. Not content with taking the number of fish they wish for food, which is considerable, they go along the nets biting and killing the fish, tossing them into the air, and playing with them. In this way they tear the nets; and very often becoming entangled in the meshes thereof, the net is completely destroyed.

It has been estimated that there are at the present time no less than two thousand seals resorting to the Seal Rocks; and, as it is said to require about sixty pounds of fish a day to supply the needs of a full-grown individual, it is easily seen that they are interfering seriously with the fishing industry of this State.

We fully appreciate the great attraction they are to the people of this city and State, as well as to the great number of visitors who annually come here; but, as the servants of the people of this State, charged with the duty of protecting their fisheries, we deemed it wise to call the attention of the proper officials to the above referred to Act, wherein the right to at all times control and limit or diminish the number of the seals resorting to said rocks, so as to protect the fisheries and fishing industries, is reserved to the United States. We communicated with the U. S. Commissioner of Fish and Fisheries, who referred the matter to the Secretary of the Interior, with the recommendation that this matter be given prompt attention.

In order that you may fully understand the subject, and deeming it of interest to many, we append herewith a copy of the Act relating to the control and care of the Seal Rocks:

AN ACT TO GRANT CERTAIN SEAL ROCKS TO THE CITY AND COUNTY OF SAN FRANCISCO, STATE OF CALIFORNIA, IN TRUST FOR THE PEOPLE OF THE UNITED STATES.

[Approved February 23, 1887.]

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That all the right and title of the United States in and to the rocky islets known as the Seal Rocks, and all rights to seals resorting there, situated off Point Lobos, in the City and County of San Francisco, State of California, are hereby granted, subject to the provisions named, in trust to said city and county, upon the following conditions and for the following uses, to wit: Said city and county shall hold said Seal Rocks inalienable for all time in trust for the people of the United States, and shall commit to the Commissioners of Golden Gate Park the custody and care of said Seal Rocks, and shall keep said rocks free from encroachment by man, and shall preserve from molestation the seals and other animals now accustomed to resort there, to the end that said Seal Rocks will continue to be a public preserve and resort for seals;

BATTLE CREEK HATCHERY.—CALIFORNIA FISH COMMISSION.

provided, that the United States may at all times control and limit or diminish the number of the seals resorting to said rocks, so as to protect the fisheries and fishing industries; *and provided further*, that whenever any of said rocks or the space occupied by said rocks shall be required by the United States for the erection or maintenance of any public work for any other purpose, then as to the rocks or space so required the provisions of this Act shall terminate and the United States shall be reinvested with the full title, control, and possession thereof. Said city and county shall signify its acceptance of this trust, and thereupon the Commissioner of the General Land Office shall file in his office a plat showing the locus of said Seal Rocks, and said plat shall be the evidence of the extent and position of the premises hereby granted.

SEC. 2. That all Acts in conflict with the provisions of this Act are hereby declared inapplicable to the premises hereby granted.

The laws for the protection of the salmon fishery should not be changed.

SHAD.

The shad fisheries continue to be influenced by the demand for the fish. The fishermen are limited by the marketmen to that amount which is daily consumed, this being deemed the only

ERRATA.

Page 11—Number pounds Shad for March, 1896, should be 14,375; for April should be 75,625; and total for six months should be 234,612.

Page 12—Number pounds Carp for March, 1896, should be 8,659, and total for six months should be 52,495.

have so many established fisheries in our waters that no legislation is needed to protect them. This is equally true of the striped bass. The following table of the number of pounds of shad received in the San Francisco market gives but a poor idea of the abundance of these fish:

Month.	1893.	1894.	1895.	1896.
January	2,774	41,266	369	4,600
February	8,781	11,767	2,106	6,000
March	10,019	17,747	14,257	14,353
April	32,389	39,115	23,960	65,625
May	80,557	57,823	36,729	95,392
June	36,184	22,027	25,787	38,620
	170,704	189,745	103,208	224,590
July	3,319	7,754	3,213	----------
August	2,796	1,764	805	----------
September	698	475	3,317	----------
October	53,652	23,496	5,788	----------
November	96,340	37,987	23,534	----------
December	77,882	8,158	6,534	----------
Totals	405,391	269,379	146,399	----------

STRIPED BASS.

The striped bass fishery shows a marked increase. This fish is becoming very common in our markets, finding a ready sale, and being considered one of the best fish offered. It promises to become one of the most valuable of our fisheries. This is certainly a gratifying result obtained from the acclimatization of 100 fingerling fish in 1879, and 350 in 1882. It is a noteworthy fact that these fish have, during the last two years, sold in San Francisco at a price much lower than in the Eastern markets.

Number of Pounds of Striped Bass Received in San Francisco Market.

Month.	1893.	1894.	1895.	1896.
January	3,041	14,177	28,328	27,179
February	2,752	12,572	15,611	36,107
March	5,190	9,002	11,281	38,340
April	8,351	9,638	22,000	41,740
May	7,232	9,413	12,639	45,903
June	4,353	4,820	11,532	15,047
	30,919	59,622	101,391	204,316
July	2,950	7,273	13,782	
August	2,655	5,956	12,419	
September	8,517	10,021	21,063	
October	6,720	22,591	28,724	
November	10,473	17,319	50,245	
December	17,504	21,972	24,553	
Totals	79,738	144,754	252,177	

CARP AND CATFISH.

Receipts of carp and catfish show an increase for the first six months of 1896. These fish, though little considered by most of our people, furnish food for a large number, and figure to a large extent as a market fish. The consumption of these fish in the Sacramento and San Joaquin valleys has been very large, and the receipts in the San Francisco markets were as follows:

Number of Pounds of Carp and Catfish Received in San Francisco Market.

Month.	1893.		1894.		1895.		1896.	
	Carp.	Catfish.	Carp.	Catfish.	Carp.	Catfish.	Carp.	Catfish.
January	624	1,175	10,142	4,117	6,017	568	22,045	3,896
February	519	1,766	4,755	1,696	3,755	680	13,159	2,714
March	4,356	2,988	6,798	4,766	3,851	831	8,420	4,807
April	3,101	3,705	2,839	5,290	1,568	2,358	4,282	3,461
May	560	3,265	767	2,978	555	3,644	1,913	9,160
June	1,469	2,155	699	2,630	650	3,151	2,437	4,830
	10,629	15,054	26,000	21,477	16,416	11,232	52,256	28,868
July	4,570	2,299	729	695	560	753		
August	1,665	710	383	357	150	1,159		
September	1,132	5,800	4,396	2,748	785	3,257		
October	3,782	5,547	4,969	2,795	1,355	7,162		
November	5,969	3,932	4,461	1,526	4,043	3,047		
December	5,337	3,202	1,642	1,867	3,555	5,672		
Totals	33,084	36,544	42,580	31,465	26,864	32,282		

STURGEON.

Since the passage of the Act by the last Legislature making the months of April, May, June, July, and August a close season for sturgeon, many reports have come to us of the large number of these fish seen far up the Sacramento and San Joaquin rivers in places where they have but rarely been seen for years. We are encouraged to think that these fish, being now able to reach natural spawning-grounds unmolested, will in a few years come into the markets in increasing instead of diminishing numbers. The abolishment of the use of the barbarous sturgeon hook, which kills the small as well as the large fish of this species, as well as all other species, should greatly help to increase the productiveness of this fishery. The receipts of this fish for 1896 are given herewith:

January	34,181 pounds.
February	26,955 pounds.
March	18,625 pounds.
Total	79,761 pounds.

TROUT.

The principal market supply of trout has continued to come from the Lake Tahoe region. The following table of shipments from Truckee is furnished by the U. S. Commission of Fish and Fisheries. The figures for 1896 are not yet obtainable:

Number of Pounds of Cut-throat Trout Caught in Lake Tahoe and Shipped from Truckee.

Month.	1894.	1895.
April		928
May	7,480	4,643
June	10,319	5,728
July	2,642	6,299
August	7,095	3,376
September	4,176	5,741
October	3,256	2,035
Totals	34,968	28,750

LAKE TULARE.

In 1895 fishing was resumed in Lake Tulare after an interval of several years, during which time the Sacramento River perch have rapidly increased in abundance. This Commission made a plant of black bass, yellow perch, and sunfish in this lake in May, 1896, and ordinances were passed by the Supervisors of Kings and Tulare counties prohibiting fishing with nets. The number of pounds of Sacramento River perch taken in this lake in 1895 follows. The figures are furnished by the U. S. Commission of Fish and Fisheries:

March	313 pounds.
April	14,876 pounds.
May	3,945 pounds.
June	2,760 pounds.
September	230 pounds.
October	1,185 pounds.
Total	23,309 pounds.

SPINY LOBSTER.

The spiny lobster fishery is developing very rapidly, and under the present laws it receives the protection which should prevent the depletion of the species. Recommendations are herein suggested to the Legislature which will make this law more effective as well as more easily observed by the fisherman. He cannot always weigh a lobster, but it is not a difficult matter to apply a measure, as is done throughout the East. The number of pounds of lobsters taken in Los Angeles County in 1892 were 128,425. The increase in the fishery is shown by the receipts in the Los Angeles markets alone in 1895:

	Pounds.		Pounds.
January	9,502	July	8,891
February	9,225	August	14,323
March	19,765	September	15,056
April	15,114	October	17,129
May	5,743	November	13,917
June	.....	December	15,073
Total			143,738

STEELHEAD TROUT.

Under the present law it is made a misdemeanor to sell steelhead trout between November 1st and April 1st; and, as these fish cannot be taken in any numbers except during that period, the enforcement of this law caused the marketmen of San Francisco to take a case into court, claiming that these fish, having the habits of salmon, must therefore be salmon and not trout, as your Commission maintains. Our stand is taken upon the advice of such high authority as Drs. David Starr Jordan and Charles H. Gilbert, of Stanford University. The evidence submitted was so conflicting that the Police Judge dismissed the case. This law was framed and passed with the idea of giving these fish the necessary opportunity to come in from the ocean and reach the spawning-grounds in the headwaters of our coast streams. It is our opinion that this object will be attained, and a sufficient number of fish reach the headwaters to keep up the supply, even if an open season of three months be made during the period of their run. Recommendations for legislation affecting these fish follow hereafter.

CRABS.

While the supply of crabs (*Cancer magister*) is still equal to the demand, the fishery shows that this species is gradually becoming more scarce, for the fisherman is obliged to go a greater distance for his catch. The protection of this branch of the fishery industry should receive the attention of the Legislature, and the recommendations hereafter suggested by us should materially help to restore a fishery worth, in 1892, some $102,900.

SISSON HATCHERY—Looking West.—CALIFORNIA FISH COMMISSION.

SAN FRANCISCO MARKET.

The status of the San Francisco market, the chief center of the fishery iudustry, is so well summed up in the report of Mr. W. A. Wilcox, and the manner and methods of taking and handling the catch so tersely described, that we make the following extract therefrom:

"The fresh-fish business of San Francisco presents few changes or improyements. Fish are handled in the same primitive manner often described and always noticed by every one that takes any interest in visiting the fish markets. The fish are seldom dressed and but a small amount of ice is used. * * * Six days in the week, every week in the year, with the exception of a few stormy days, the little lateen-rigged fishing-boats sail out in the morning for the same fishing-grounds, with the same kind of fishing-gear, nets, or trawls; with little trouble they catch the same varieties of fish, and the evening finds them back in their fishing-dock." (p. 197.) "The fresh-fish markets of San Francisco are interesting and in some respects unique. In them one may buy a single pound of fish or a carload, both wholesale and retail business being carried on at the same stand. About 12,000,000 pounds of fresh fish are handled annually, exclusive of those in the Chinese markets. Large quantities of oysters, clams, mussels, shrimp, and crabs are sold annually. * * * The fresh and salt waters of the State are rich in quantity and variety of animal life, and fishery products from all over the State find their way to this market. It is said that over 275 species of fish are found in the waters of the State, although many of these are not used as food, except by the frugal Chinese, who rarely permit anything to go to waste." (p. 208.) "The quantity of fishery product annually withdrawn from these waters is enormous, but it is doubtful if the full resources are utilized or appreciated." (p. 196.)

MONTEREY BAY.

Monterey Bay fisheries are as abundantly supplied as ever. The number of salmon taken during the last two summers has been enormous. The catch was so large this year that the Sacramento River Packers Association opened a cannery at Monterey.

SOUTHERN CALIFORNIA.

The fisheries of Southern California were augmented by the building of a cannery at San Pedro, in 1895, by the Haniman Fish Company, for the canning of sardines, lobsters, mackerel, barracuda, etc. This cannery was supplied with the latest appliances and gave great promise of enormously increasing the output. Unfortunately, it was completely destroyed by fire in June of this year. The sardine cannery of the California Fish Company, at East San Pedro, has been in operation continuously since our last report, and is most successful.

The San Diego fisheries are the only ones in the State which show a falling off. This is due in a large part to their limited market.

EXPORTS.

The export trade in fishery products is summed up in the following table:

*Value of Exports of Fishery Products from San Francisco.**

Article.	1892.	1893.	1894.	1895.
Codfish	$26,681 00	$21,412 00	$16,557 00	$21,945 00
Dried fish	34,439 00	27,043 00	39,558 00	20,351 00
Salmon, canned	1,810,567 00	621,336 00	1,766,619 00	2,285,711 00
Salmon, in barrels	46,986 00	44,157 00	43,028 00	42,756 00
Other canned fish	10,715 00	9,828 00	13,397 00	25,820 00
Oysters	9,655 00	7,432 00	7,369 00	7,151 00
Other shell-fish	226,063 00	188,532 00	167,453 00	179,734 00
Totals	$2,165,106 00	$919,740 00	$2,053,981 00	$2,583,468 00

*Figures furnished by U. S. Customs officials, San Francisco.

ENFORCING THE LAWS.

In the enforcement of the laws we have done all that was possible; and, while not claiming to have covered all of the territory under our jurisdiction, which would be impossible with ten times as many men as our funds will permit of our employing, we do claim to have given the food fishes all the protection possible, and to have so placed our men that the best service was rendered to the most important interests placed in our charge.

SALMON PROTECTION.

Our purpose has been to give the salmon fisheries that supervision and protection which is necessary to insure the run of fish reaching the headwaters of our rivers, so that a sufficient number of eggs may be taken to keep up the supply.

An effectual patrol of the bays and rivers from San Francisco to Redding has been maintained during the close season. During both the spring and fall runs our deputies have been kept on the river with instructions to examine the nets and ascertain if the legal-sized mesh was in use and see that the Saturday-Sunday law was not violated. We have hired the launch "Hustler" for this patrol, and have found her well adapted to the river work. The number of arrests made has not been large, because such heavy fines have been imposed under the present laws that the fishermen do not care to take the chances of being caught and convicted. When arrested, they have, almost without exception, fought the cases in court rather than plead guilty, as was their habit when the penalty was less severe.

STURGEON LINES.

Thousands of feet of sturgeon lines, the use of which is now prohibited by law, have been taken up; and, never having been claimed, are now in our possession. We are determined to break up the use of this gear, as none more destructive to fish of every kind is in use.

LICENSES. The collections of licenses from fishermen who use a boat and net have been made by the patrol department, and a statement showing the amount collected and the number and classes issued will be found in the Appendix.

RUSSIAN RIVER. To the enforcement of the fishery laws upon Russian River we have given much attention, and in the winter months, during the run of steelheads, we have maintained a day and night patrol of that part of Russian River where nets can be used. The laws have been effectually enforced and the patrol made numerous arrests. Many set-nets have been taken from the river, whose owners were either unknown or against whom legal proof could not be established. These nets were surrendered to the keeping of the Justices before whom complaints were made.

TROUT STREAMS. A patrol of the trout streams has been maintained during the close season, especially of those nearest San Francisco, which are oftenest visited by poachers, resulting in the practical stopping of illegal fishing. As a result of patroling one stream for a few days and then transferring our deputy to another, we have effectually covered much territory, and kept the streams free from poachers by reason of the uncertainty of the movements of the patrol.

EXPLOSIVES. We have used every effort and taken every opportunity to break up the pernicious habit of killing fish with explosives, and are glad to say that we have, in one or two instances, succeeded in punishing the guilty parties. It is but seldom that the transgressor can be caught, as he does not use the explosive save when he thinks himself unobserved, and it takes him but a few minutes to remove every evidence which would in any way incriminate him, although the result of his guilty actions are apparent on every hand, and the destruction wrought by his dastardly act is not soon repaired.

BIG GUNS. In an endeavor to enforce the law prohibiting the use of shotguns of larger caliber than ten-gauge, we kept a deputy in the field in the San Joaquin Valley during the greater part of the shooting season of 1895–96. He made several arrests, but secured but one conviction, though he was heartily supported by the District Attorney of Merced County. We are satisfied, however, that his presence in this section had a good effect on the pot-hunters, and to a great extent stopped the use of big guns.

FISH-LADDERS. Many new ladders have been built upon dams throughout the State, and we have made it our constant care to see that all ladders have been kept in repair and open for the passage of fish.

The construction of a suitable fish-ladder upon the dam of the Folsom Water Power Company at Folsom was completed in April, 1896. It is

constructed of rock and cement, is 12 to 18 feet wide, with a fall of one foot in seven, and permits the passage of fish from the pool at the base of the dam up into the canal near the head-gates. To this point the ladder is satisfactory, but the question has been raised regarding the ability of fish to pass the head-gates as they are now operated, owing to the outpouring volume of water. It was our intention to test this point by the use of nets above the head-gates, but no opportunity was had this past season, as there was no apparent run of shad or other migratory fish below the dam. The ladder has not been accepted by your Commission, and will not be until all doubt of its working has been removed.

A reliable correspondent at Auburn reports the presence of shad in the American River below that point and above the Folsom dam.

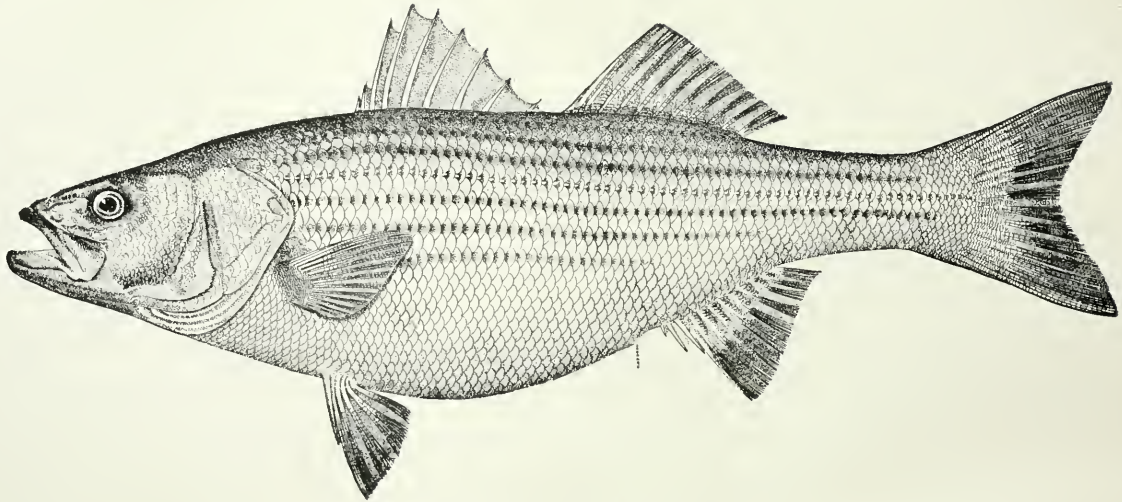
A passageway for fish has been cut in the rock on the east side of the dam in the American River near Folsom, owned by the American River Ditch and Milling Company, which removes all doubt of fish being able to pass this obstruction.

The construction of a fish-ladder upon the dam in the Tuolumne River, above La Grange, is delayed, owing to the fact that it is the joint property of the Modesto and Turlock irrigation districts, which are now prevented from any proceedings by an injunction pending a decision from the United States Supreme Court regarding the constitutionality of the Wright Irrigation Law.

The engineering difficulties in constructing a fish-ladder upon this dam are great. The top of the dam is 98 feet above the bed of the river, and the conformation of the banks will make the construction and maintenance of a fishway a difficult and expensive undertaking. The run of migratory fishes at this point is not large. The number of salmon that enter this stream to spawn is small, and after its waters are taken out for irrigating purposes, will probably decrease. We are of the opinion that the construction of a ladder upon this dam is not warranted, and would be of little or no benefit to the people or the fish.

The dam in the Klamath River at Pokegama, in Siskiyou County, has been the source of much trouble and damage to the tributary streams above that point. The ladder built in 1894 was washed out during the high water in the spring of 1895, but was replaced in the fall of that year. It was again carried away in January, 1896, and now different plans have been furnished for its reconstruction. Owing to the loss of this ladder we were prevented from taking the usual number of rainbow trout eggs at the Shovel Creek station.

It is to be regretted that the law does not permit the Board to cause many of the old ladders upon the dams in the Truckee River to be replaced, as many of them are small and badly located upon the dams; but,



STRIPED BASS—*Roccus lineatus.*

as the owners built them according to plans furnished by previous Commissioners, we are unable to rectify the matter until they are destroyed.

Many complaints have come to this office concerning the condition of some of the ladders and dams in the Truckee River in the State of Nevada, it being claimed that fish could not pass over them in their annual run from Pyramid Lake. We have upon several occasions called the attention of the Nevada Commissioner to these dams, and regret to inform you that the matter has not been treated in the considerate manner our mutual interests in this valuable stream would seem to deserve.

A new ladder has been constructed on the dam in the Little Truckee, at Boca; and, the gates in the dam some miles above that point having been removed, the fish can now pass the entire length of this valuable stream.

The conditions in the Truckee River basin were never more to the satisfaction of the sportsman than at present.

SAWDUST.

The law prohibiting the dumping of "shavings, slabs, edgings, and mill and factory refuse" into streams has been rigidly enforced everywhere. In the summer of 1895 the Attorney-General, at the request of your Commission, obtained an injunction from the Superior Court of Sacramento County restraining the Truckee Lumber Company and the State Line Mill Company from dumping their mill and factory refuse into the Truckee River, since which time it has been free from deleterious matter. An appeal to the Supreme Court was taken by the Truckee Lumber Company in May, 1896. If a decision is rendered in time, it is our intention to include extracts from it in the Appendix to this report, as well as from the brief filed by the Attorney-General.

SCREENS.

The matter of the placing of screens at the heads of water ditches has received due attention. In many cases screens have been placed in ditches by order of the Board. There are, however, many irrigating ditches in the State where the placing of screens is considered inadvisable and unnecessary. The use of screens with meshes small enough to exclude trout fry would, in many cases, practically shut off the water from the ditch. It is true that some of these ditches carry many small fish on to the fields to die, but the total value of the fish products of these streams does not equal the one thousandth part of the value of these waters to the orchards and fields. That we have in these matters exercised and carried out the intention of the Legislature is not open to question.

The importance of the work in Southern California and Humboldt County has made it advisable to keep a man stationed in each of these localities during certain seasons of the year. By this means the supervision of the commercial fisheries and the enforcement of the fish and

game laws has been been better subserved. We are glad to report that these districts are to-day in better condition than ever before.

GAME LAWS. Section 626*i* of the Penal Code, as amended by the last Legislature, has unfortunately made some enemies for game protection, since it allows the sale of game birds but two months in the year, while it is made lawful to shoot them during four months. This is indisputably good law, although it has been called class legislation. However unjust the claim may be that it is a discrimination in favor of sportsmen, it cannot be denied but that an adverse public sentiment has been aroused, particularly evidenced by the discharge of offenders tried by the Police Court of San Francisco.

It is an undisputed fact that the game of this State is decreasing. It therefore follows that it needs protection, not only within the confines of this State, but also in Alaska, where the destruction of wild-fowl eggs does more to decrease the abundance of ducks than does hunting them here. Our game is too valuable a resource not to receive the consideration it demands at the hands of our people; but, until all classes are united for the common purpose of protection, a law like the present one only serves to incite the aggrieved parties to disobey it, and that leads to the infringement of other laws.

The repeated failures to convict the dealers arrested for selling game when it could be legally shot but not sold, is, in itself, sufficient to prove that public sentiment does not sustain the law. The law does not place the restriction upon the market-hunter that is claimed for it. Many birds are from the opening of the killing season placed in cold storage until such time as they can be legally sold. Complaints against the workings of this law have been made to your Commission from all sections of the State. The press of the State has voiced public sentiment in its demand that the seasons shall be made alike to all.

We recommend that restrictions upon the sportsman and the market-hunter be made alike. We realize that this will be opposed by some sportsmen, but the law will then receive public approval and end the effective cry before a jury that it is legislation for the sportsmen against the people, and that sportsmen do not care to protect the game, except for themselves, and not for a food supply. The marketmen are in favor of game protection, but insist that the open season, be it longer or shorter, shall be the same for all.

It is well known that kindly feelings do not exist between the so-called sportsmen and the market hunters and dealers. All have their rights, and it is not our intention to advocate laws favorable to any class. We simply recommend that such laws be enacted as will serve the best interests of all.

A special effort was made to enforce Section 626*i*, and prohibit the buying and selling of game in the markets of San Francisco, both before and

after the season allowed by law. Evidence of the most conclusive character was introduced in court by Deputy Attorney-General Jackson, who conducted the prosecutions, yet it was impossible to convict except in one case. In several of the strongest cases every effort was made to convict, but a verdict of "not guilty" was returned so quickly by the juries that the Police Judges stated, in dismissing the balance of the cases, that they were satisfied that, though the evidence was conclusive, convictions could not be had under the law, and that they could not block the administration of justice in their courts by giving places on the calendar to such cases. Orders were given by the various Judges to issue no more complaints under that section.

So unpopular is this law, and so sure were the marketmen of the result of all arrests, that but little effort was made to conceal their violations. Most any one, unless he were a recognized officer, could buy game birds at any time, and we were powerless to prevent it.

In order that the dealers might not lose their regular customers, many of them who would otherwise have observed the law were obliged to sell game out of season, because other dealers less conscientious were doing so. These dealers when arrested, rather than suffer the annoyance of a trial, pleaded guilty and a small fine was imposed, making our record of convictions less humiliating.

GAME WARDENS.

In the counties where Game Wardens have been appointed, the success of the system has been fully demonstrated. The people observe these laws and demand their enforcement, and the courts have supported the Wardens in their administration. It is unfortunate that more Boards of Supervisors have not been sufficiently alive to the value of these interests and appointed Game Wardens. One live man in each county of this State would effectually stop infractions of the law.

On account of the vast area requiring protection, and the small force of men at our disposal, it has been impossible to keep a man in a given locality longer than a few days at a time. The presence of a deputy is sufficient to stop all poaching in that vicinity so long as he remains, but poaching is resumed as soon as he is ordered to other fields. This condition has been to some extent remedied in many sections by the appointment of deputies who serve without pay. Their service, however, is not as efficient as it should be, because they cannot afford to spend much time, nor do they care to incur the displeasure of poachers. The payment of a moderate salary to a man placed in a territory sufficiently small for him to cover well, will reduce poaching to a minimum. He may not make many arrests, but his presence will serve to warn violators of what may be expected of an infringement of the law.

Because we deem the present system for the enforcement of the fish and game laws to be inadequate, we invite your attention to recommenda-

Summary of Arrests Made by Deputies of Fish Commission, and Outcome of Cases, for Two Years ending September 1, 1896.

Number of Arrests.	Charged With—	Pleaded Guilty.	Jury Trial.	Convicted.	Amount of Fines.	Days' Imprisonment.	Paid Cost of Court.	Acquitted.	Cases Dismissed.	*Complaints against John Doe.	Remarks.
7	Selling and possession of salmon, close season	4		2	$129 00				1		
22	Catching salmon, close season	1	5		100 00			3	16		Sixteen cases dismissed in Del Norte County.
9	Saturday and Sunday fishing for salmon	2			200 00				1	6	
15	Illegal mesh-nets	6	5		400 00			5	4		
18	Set-nets							5	1	12	
16	Fishing without a license	10		6	89 70		6				
2	Use of sturgeon gear		2	2	200 00						Jury disagreed; conviction secured second trial.
9	Set-nets in Russian River	2			50 00					7	
9	Taking steelhead trout with net	4	1		30 00			1	4		
1	Selling steelhead trout							1			Test case.
1	Taking trout with trap										No bond required by Judge; defendant escaped.
17	Taking trout, close season	10	5	3	121 00	10	2	2	1		
11	Possession of underweight lobsters	7	3	1	69 20	25		2			One defendant forfeited bail.
1	Possession of underweight striped bass	1			5 00						
2	Dumping sawdust into streams							2			
1	Possession of deer meat, Humboldt County	1			32 00	8					
1	Possession of deer skins		1	1		50					
1	Selling deer meat	1			10 00						
5	Use of big-bore guns		1	2					2		One case dismis'd; hung jury.
7	Shooting ducks, quail, and grouse out of season	4	3	1	45 00			1	1		One case dismis'd; hung jury.
1	Possession of quail	1			20 00						
26	Selling ducks and quail out of season	15	3	1	120 00			2	8		
182		69	29	19	$1,620 90	93	8	24	39	25	

*Nets held for evidence and never claimed. Owners ran off and left nets.
17 sets of sturgeon line taken up. Same never claimed.
1,850 pounds salmon seized on wharf. Same never claimed.
8 bales Oregon deer hides seized from steamer. Same never claimed.

RACK AND WEIR.—BATTLE CREEK HATCHERY.

tions for legislation which we think will, with little expense, save many dollars to the State, and result in great benefit to our fish and game interests.

ARRESTS. That you may more readily see in detail the number and character of arrests made by our deputies, we call attention to the table on opposite page, showing a record of the work in this regard.

FISH CULTURE. Never before in the history of the California Fish Commission have such rapid strides been made in the introduction and propagation of valuable food and game fishes as during the last two years. Having such varied characteristics of land and water formation, some suitable location can be found in this State for the transplanting of nearly every variety of food and game fish. To this cause, in great measure, is due the success of the Commission in securing such grand results.

Dr. H. M. Smith, of the U. S. Commission of Fish and Fisheries, says, in his paper already referred to:

"The results attending the experimental introduction of aquatic food animals into the waters of the Pacific States must be regarded among the foremost achievements in fish culture. The striking illustrations here presented of the influence of man over the supply of free swimming anadromous fishes, to say nothing of his ability to affect the abundance of non-migratory species, are of great economic and scientific interest. Aside from the great economic results which have followed the introduction of east-coast fishes into the waters of the Pacific States, a very important basis has been furnished for judging of the general effects of artificial methods in regions where the object of fish-cultural operations has been to maintain and increase the abundance of native species." (p. 379.)

While our operations have in great measure been devoted to the propagation of the native species of fish, we have also endeavored to stock all suitable waters with imported species, and have introduced several new varieties of trout.

BATTLE CREEK. From a desire to further increase the run of salmon in the Sacramento River, we caused a thorough investigation to be made of its headwaters, with a view to establishing a spawning station. This investigation covered a period of two seasons, and resulted in the erection of a hatchery near the mouth of Battle Creek, in Tehama County, in September, 1895. Battle Creek is the large stream of water which divides Tehama and Shasta counties on the east side of the Sacramento River. It takes its source from Mount Lassen, and carries a large volume of water during the entire year. It is not subject to floods during the early winter months. Salmon enter this stream in large numbers during the months of October and November.

The Battle Creek station is located on the lands of Mr. Frank R. Love, of Anderson, who generously donated to the State a lease for five years of such land as was required for buildings. The necessary water is supplied to the hatchery from Battle Creek through a ditch some three

quarters of a mile long. The right of way for this ditch was also donated by Mr. Frank R. Love and Messrs. J. & A. Nunes.

The building erected is 90 by 40 feet, and is fitted with sixty hatching-boxes, a capacity of ten million eggs. The salmon are retained at the station by a rack or weir, placed across the creek, which is 173 feet long, and is sufficiently supported by five bulkheads to withstand a rise of 6 feet in the water.

The building, racks, and equipments cost the State $2,600, less $500 donated by the salmon canneries on the Sacramento River. The bills were paid out of the Fish Commission Fund. The work of construction was begun in September, 1895, and the first spawn was taken on the 21st of the following month. On November 12th, the full capacity of the hatchery—ten million—was reached. The run of spawn-fish showed no signs of abatement at the time we ceased operations, and the racks were removed from the creek that the balance of the run might pass up to their natural spawning-grounds. Double the amount of spawn could have been taken had the capacity of our hatchery permitted.

The eggs taken were eyed at Battle Creek and then forwarded to Sisson to be hatched, the latter place being deemed a more suitable and economical point for distribution. We sent one million eggs to the United States hatchery at Clackamas, Or., and were thereby pleased to repay in part some of the many kindnesses received from the National Commission.

Summary of Salmon Output from Battle Creek Spawning Station during Year of 1895.

Point of Shipment.	Eggs.	Fry.
Sisson Hatchery	9,000,000	
U. S. Commission station, Clackamas, Oregon	1,000,000	
Total	10,000,000	

This location is most favorable for the taking of salmon spawn, there being almost no limit to the number of eggs which can be secured there with proper apparatus. In order that every advantage might be taken of the benefits of the station, realizing that large appropriations would be necessary for us to carry on the work, we made a proposition to Capt. John J. Brice, U. S. Commissioner of Fish and Fisheries, to enlarge and operate it. The matter received his prompt attention. One of his staff in Washington was detailed to visit the station and to report upon its advantages. This report so pleased him that he visited the station and made personal investigations. He attended the August meeting of this Board and requested the privilege of erecting temporary buildings that would enable him to handle the surplus after we had filled our hatchery. He stated that he was desirous of purchasing the station, but that before

this could be done it would be necessary for Congress to make an appropriation for the purpose. You will recall that we submitted this entire question for your approval before entering into these negotiations. We deem it to the State's best interests that this station be sold to the U. S. Commission at cost, and the moneys so received applied to increasing the capacity of the hatchery at Sisson, or to the establishment of another salmon station.

SISSON.

The Sisson hatchery has been operated to its full capacity during the last two years, as the summary of distributions from that station will show. It would be a material assistance to our work if the capacity of this station could be increased.

The greater portion of the summer and fall take of salmon eggs at the United States station at Baird, on the McCloud River, were sent to us as usual, and hatched at Sisson. They numbered 3,587,000 in 1894, and 6,750,800 in 1895.

All of the new varieties of trout distributed throughout the State were hatched here; also the native rainbow and cut-throat eggs received from the Shovel Creek and Tahoe stations, and the take of salmon eggs at Battle Creek.

A lease for five years of the ground just west of the old nurseries was obtained from Mrs. L. M. Sisson for the nominal sum of $1, and a small lake constructed thereon by raising an embankment on two sides. We could not have handled the large number of salmon eggs hatched there without this lake, as the capacity of the hatchery was entirely inadequate. The alevins were put in the lake soon after hatching, and after the sac was absorbed the young fry were daily fed until the screens were removed and they were allowed to escape into streams tributary to the Sacramento. This lake, together with Sisson and Klink's lakes, which are leased by us, afford ample rearing ponds for fish. Sisson Lake now contains large-mouth black bass, and 20,000 brown trout fry have been placed in Klink's Lake, where they will be kept for breeding purposes, and the new lake now contains some 3,000 Loch Leven trout, from which we hope to obtain spawn another season.

Summary of Distribution of Fish From Sisson Hatchery during Years 1895 and 1896.

Species.	1895.		1896.	
	Fry.	Yearlings and Adults.	Fry.	Yearlings and Adults.
Salmon	3,435,000		14,283,180	
Cut-throat trout	1,970,000		1,741,650	
Rainbow trout	105,000			
Eastern Brook trout	197,000			
Dolly Varden trout	5,000		2,000	
Mackinaw trout	65,000			300
Loch Leven trout		314		1,697
German Brown trout			105,000	
Landlocked salmon				250
Totals	5,777,000	314	16,131,830	2,247

GOLDEN TROUT.

The golden trout which were brought to us by the members of the Visalia Sportsmen's Club, were placed in one of our ponds at the Sisson hatchery, where they thrived until attacked, just before the spawning period in 1895, by some disease, which killed them all.

SHOVEL CREEK.

The operations at Shovel Creek station, both in 1895 and 1896, were almost a failure, because the ladder on the dam in the Klamath River at Pokegama was washed out by the high water. For this reason the take was barely sufficient to enable us to fulfill our agreement with the Fish Commissioner of Nevada to give him 300,000 rainbow-trout spawn in exchange for a like number of eastern brook-trout eggs.

Summary of Rainbow Output from Shovel Creek Spawning Station for Years 1895 and 1896.

Point of Shipment.	1895.		1896.	
	Eggs.	Fry.	Eggs.	Fry.
U. S. Fish Com. Stations—				
Wytheville, Va.	10,000			
Neosho, Mo.	10,000			
Nevada Fish Commission	113,000		125,000	
Sisson Hatchery	126,500			
Wawona Hatchery			320,000	
Shovel Creek		10,500		25,000
Totals	259,500	10,500	445,000	25,000

BEAR VALLEY.

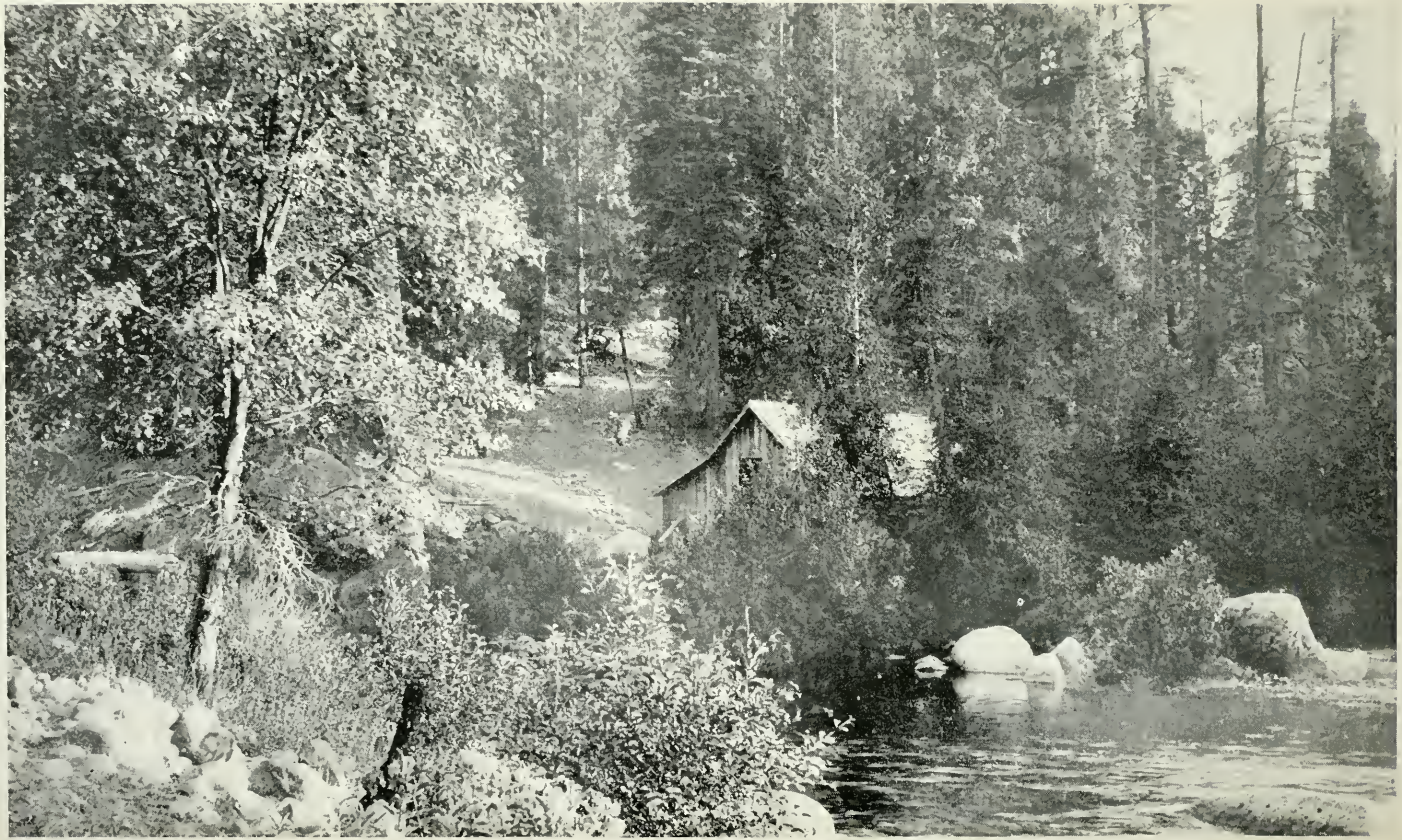
It has not been deemed expedient to operate the Bear Valley hatchery in Marin County during the last two years, for the reason that it was more economical to concentrate our hatchery operations at Sisson.

LAKE TAHOE.

The amount of cut-throat trout spawn taken at Lake Tahoe has exceeded that taken in any previous two years. The hatchery at Tahoe City has been operated to its fullest capacity, all of the eggs, with the exception of those hatched at the new hatchery near Tallac, being eyed there. The water-supply at this station is hardly sufficient for the needs of the work, and with the increased take during the last two years it has been rather a difficult matter to carry on the work with the crowded condition of the boxes. This condition was somewhat relieved by shipping the eggs to the Sisson hatchery as soon as possible.

TALLAC.

A temporary hatchery was erected by M. Lawrence & Co., proprietors of the Tallac House at Lake Tahoe, on Taylor Creek, in 1895, but the water-supply was not satisfactory. This year a permanent building was placed by them some three miles from the hotel, on a stream which affords a supply adequate to every need. The operation of this hatchery was placed under the control of



WAWONA HATCHERY.—CALIFORNIA FISH COMMISSION.

this Commission, upon condition that we operate it to its greatest capacity and place the fry in public waters in that vicinity. Our operations at Lake Tahoe have been promoted in every way possible by M. Lawrence & Co., and other residents.

Operations were carried on both years on Taylor and Blackwood creeks, the former proving more productive, as the following table shows:

Take of Cut-Throat Trout Eggs at Lake Tahoe.

	1895.	1896.
Taylor Creek	4,240,000	4,014,700
Blackwood Creek	160,000	349,300
Totals	4,400,000	4,364,000

Incident to our operations at Lake Tahoe, an unfortunate working of the law for the protection of trout ought to be mentioned. From this locality are annually taken for the markets over 50,000 pounds of trout. The season for taking trout opens on April 1st. An examination of our spawning records will show that the trout of Lake Tahoe do not begin to spawn before April, that the greater number spawn in the latter part of April and during May, and that a considerable number do not spawn until June. This is equally true of the fish in lakes Donner, Independence, and Webber, and the tributary streams. These fish are in the best marketable condition from July to January. This matter has been called to the attention of the Boards of Supervisors of El Dorado, Placer, and Nevada counties, but with the exception of Placer County no action has been taken.

Summary of Distribution of Fish from Tahoe Hatcheries during Years 1895 and 1896.

Station.	Point of Shipment.	1895.		1896.	
		Eggs.	Fry.	Eggs.	Fry.
Taylor Creek	Waters in vicinity		400,000		
Tallac	Waters in vicinity				728,000
Tahoe City	Waters in State		890,000		1,023,000
	J. Annin, Jr., Caledonia, N. Y.	25,000			
	N. Y. Fish Commission	25,000			
	Sisson Hatchery	2,160,000		1,910,000	
	Wawona Hatchery	500,000		200,000	
	U. S. Fish Commission Car, No. 3	*200,000			
	Home Products Exposition			16,000	
Totals		2,910,000	1,290,000	2,126,000	1,751,000

*Alevins.

WAWONA.

The inaccessibility of the region in and about the Yosemite National Park has made it extremely difficult to stock its numerous waters with fish. This difficulty was obviated by the erection and equipment of a branch hatchery at Wawona, Mariposa County, in the spring of 1895, by Messrs. Washburn Bros., proprietors of the Yosemite-Raymond stage line. This hatchery was turned over to this Commission, to be operated upon condition that an annual hatch of 500,000 trout eggs should be distributed in that vicinity. This station is well located geographically, but unfortunately the temperature of the water rises considerably during July and August. In 1895 the first shipment of cut-throat trout eggs reached Wawona on June 10th, but by sending eggs to this station in April, this year much better success attended the season's work. At the close of operations in 1895 we caused a thorough investigation to be made of the streams and lakes of the Yosemite National Park, in order that an intelligent distribution might thereafter be made. Acting upon the result of these investigations we made a special effort this year to stock the most favorable waters of the Park. The result is shown in the table of distribution in the Appendix.

Summary of Distribution from Wawona Hatchery.

	1895.	1896.
Cut-throat fry	293,000	160,000
Rainbow fry		284,000
Totals	293,000	444,000

In the operation of this station our men have at all times received the cordial support and aid of Messrs. Washburn.

In the distribution of fish from the Wawona hatchery we have been materially assisted by the United States troops stationed near Wawona. In 1895, Capt. Alex. Rodgers, and in 1896, Col. S. B. M. Young, Fourth Cavalry, U. S. A., placed their teams and pack trains at our service and detailed the necessary officers and men to assist us.

DISTRIBUTION.

It will be seen from the list of distributions of fish from the Wawona hatchery that the entire shipment leaving the building did not always reach the streams named. The distributing trips consumed from two to four days with pack trains over trails sometimes almost impassable. Considering the difficulties encountered, all concerned were gratified if a sufficient number were placed in the lake or stream to eventually stock it. Fish cans, especially adapted to the transportation of fish by pack animals, were designed for this work; and with the new, large round cans purchased, we are now well equipped for distributing fish throughout the State.

In the distribution of fish in the counties where Game Wardens were

appointed, the fry have been consigned to them, and they have given them a wider distribution than otherwise would have been possible; and for this reason those counties have been favored with larger consignments than counties where there is no Game Warden.

FRY PLANTING.

With the exception of the landlocked salmon and Mackinaw and Loch Leven trout, all the fish distributed from eggs hatched at our stations have been feeding fry. We are alive to the advantages of planting yearlings, and aware of the position taken by the National and State Commissions upon this question, but the conditions in our waters are much different than in the Eastern streams. Our mountain streams are in the main free from darters and other predaceous fishes, except trout. Our laws do not permit the closing of the portion of streams stocked, nor do they regulate the size of trout to be taken. The unqualified success of the planting of trout fry in this State, and the greatly added expense of rearing any considerable number of yearlings under our present limited appropriations, make it inadvisable and impracticable. The fact that hand-fed fish also lose the instinct of self-preservation to a great degree, must be taken into consideration. The success of planting salmon fry, as soon as possible after the sac is absorbed, in the headwaters of the Sacramento River, cannot be questioned. A close inspection of these small streams during the last few winters has shown them to be swarming with young salmon that immediately seek shelter upon the approach of the observer.

LAKE CUYAMACA.

The U. S. Commission of Fish and Fisheries brought out and planted in the waters of the Feather River, near Gridley, and in Lake Cuyamaca, San Diego County, in 1891, 500 catfish (*Ictalarus punctatus*), 6,980 yellow perch (*Perca flavescens*), 2,610 large-mouth black bass (*Micropterus salmoides*), 285 crappie (*Pomoxis annularis* and *P. sparoides*), 500 rockbass (*Amblo-plites rupestris*), 500 pickerel (*Lucius vermiculatus*), and a number of green sunfish (*Lepomis cyanellus*) and golden shiners (*Notemigonus crysoleucas*). It is reported that these fish have done well in the Feather River; just how well it is, of course, impossible to tell. In order that the National Commission might know the results attained in Lake Cuyamaca, we sent a representative there in January, 1896, who reported that large numbers of all of the above varieties were found except the crappie and rockbass. Upon application, permission was granted by Mr. L. F. Doolittle, Secretary of the San Diego Flume Company, to take fish from the lake for distribution. As early as the weather would permit, we sent two of our men to Lake Cuyamaca, who secured sufficient fish to make a total distribution of 541 large-mouth black bass, 27 pickerel, 454 yellow perch, 116 sunfish, and 253 shiners (fish food). These fish were nearly all full grown, varying in size from one half to five pounds, and most of them with ripe spawn, so that good results

may be expected in all waters stocked. We placed the bass in the Sacramento River, in Tulare and Clear lakes and their tributaries, believing that they will thrive in those waters on the carp and suckers found there in large numbers. We have also stocked several ponds and lakes in various parts of the State with these varieties, reserving the right to take fish from them at any time for stocking purposes. We have also placed a number of fish in one of the ponds at Sisson, where we intend holding them for breeding purposes.

SMALL-MOUTH BLACK BASS.

For the purpose of distribution during the two seasons last passed we have drawn upon the supply of small-mouth black bass in the lake of the Benicia Water Company, in conformity with the contract made when this lake was stocked. Through the courtesy of Mr. James L. Flood we have also been permitted to take this variety of bass from his lake. The largest distribution of black bass ever made in this State was made during the season of 1895. The chief source of supply was Russian River, where the fry was taken in large numbers. Unfavorable conditions this year made it impossible to take any fry from this stream.

IMPORTATIONS.

We received 100,000 Mackinaw (*Salvelinus namaycush*) from the U. S. Fish Commission station at Northville, Mich., and 10,000 landlocked salmon (*Salmo salar sebago*) from Greenlake, Me., in 1895. In exchange for a like number of German brown trout (*Salmo fario*) eggs, we sent Mr. J. Annin, Jr., of Caledonia, N. Y., 25,000 cut-throat spawn in 1895. We also purchased 100,000 eggs of this variety from him; and, with the 10,000 received from Hoopa Valley, through the courtesy of the U. S. Commissioner of Fish and Fisheries, a total of 135,000 were hatched at Sisson.

Our request for a carload of large-mouth black bass was granted by the U. S. Commissioner of Fish and Fisheries, and in June, 1895, Car No. 3 reached here with 2,600 fingerlings. The expense of transporting this car from Ogden was jointly borne by the Spring Valley Water Company and your Commission, with the understanding that one half the bass should be placed in their lakes. These bass arrived in splendid condition, and were distributed as follows:

Lake Merced	300
Crystal Springs Lake	1,000
Buena Vista Lake, Kern County	50
Gay Pond, San Diego County	50
Elsinore Lake, Riverside County	50
Sisson Lake, for breeders	1,200
Total	2,650

Besides the bass, the car contained several other varieties of fish, which were distributed as follows: Elsinore Lake, 18 sunfish (*Lepomis cyanellus*); Balsa Chico River, Orange County, 18 sunfish (same

REARING POND—WAWONA HATCHERY.—CALIFORNIA FISH COMMISSION.

variety), 8 Warmouth bass (*Chænobryttus gulosus*), and 18 catfish (*Ictalarus punctatus*). The following were sent to Sisson and placed in one of the rearing-ponds: 12 yearling white bass, 12 yearling Warmouth bass, and 3 adult yellow perch.

Applications are now on file with Hon. J. J. Brice, U. S. Commissioner of Fish and Fisheries, for a carload of pike-perch or wall-eyed pike, and alewives. We are also desirous of obtaining a further supply of landlocked salmon and Loch Leven, Mackinaw, and German brown trout eggs. Applications will be made in due time for these, as well as the blue crabs and diamond-back terrapin, which we believe will do well in our waters. We have had some negotiations with U. S. Commissioner Brice and members of his staff, relative to planting in the Pacific Ocean certain varieties of Atlantic deep-sea fishes.

Summary of Distribution of Fish for years ending September 1, 1895 and 1896.

Source of Supply.	Species.	1895.			1896.		
		Eggs.	Fry.	Adults and Yearlings.	Eggs.	Fry.	Adults and Yearlings.
U. S. Station, Baird, Cal.	Salmon		3,435,000			5,538,600	
Battle Creek Station					1,000,000	8,744,580	
Shovel Creek Station	Rainbow trout	133,000	115,500		125,000	309,000	
Lake Tahoe Stations	Cut-throat trout	*250,000	3,553,000		16,000	3,652,650	
Sisson Hatchery	Dolly Varden trout		5,000			2,000	
Nevada Commission	Eastern brook trout		197,000				
U. S. Station—							
Northville, Mich.	Mackinaw trout		65,000				300
Northville, Mich.	Loch Leven trout			314			1,697
Greenlake, Me.	Landlocked salmon						250
Hoopa Valley, Cal.	German brown trout					105,000	
J. Annin, Jr., Caledonia, N. Y.							
Russian River	Small-mouth black bass		19,750				
Flood's Lake				850			
Benicia Water Co.'s Lake				75			1,571
U. S. Station, Quincy, Ill.	Large-mouth black bass		1,450				
Lake Cuyamaca							541
Lake Cuyamaca	Pickerel						27
Lake Cuyamaca	Yellow perch						454
Lake Cuyamaca	Green sunfish						116
Lake Cuyamaca	†Golden shiners						253
Totals		383,000	7,391,700	1,239	1,141,000	18,351,830	5,209

*200,000 alevins. †Fish food.

CRABS AND CLAMS.

In February and March of 1896, at the request of the fishermen and others of Los Angeles County, we transplanted, in prime condition, from the waters about San Francisco to those off the coast of Los Angeles County, 116 large crabs (*Cancer magister*)—56 males and 60 females. At our request the Supervisors of Los Angeles County passed an ordinance prohibiting the taking of this crab for three years. To show his appreciation of the above work, Mr. J. L. DeJarnatt, Vice-President of the Haniman Fish Company, of San Pedro, presented us with 8,000 razor-back clams, and these, together with 7,000 more which we purchased, were planted as follows:

San Francisco Bay, in outlet of San Leandro Creek	4,000
San Pablo Bay, in outlet of Petaluma Creek	4,000
Richardson's Bay	3,500
Tomales Bay, near Hamlet	3,500
	15,000

No attempt has yet been made to examine into the results of this experiment.

PHEASANTS.

Reports upon the result of the attempt to acclimatize the Mongolian pheasant in 1894 indicate that the experiment has not been altogether successful. It was deemed best by our predecessors to pursue a method which has been fruitful of good results in Oregon. The old birds were sent to citizens in different parts of the State, and were confined in aviaries. They were to be held and their young turned loose. The hen pheasant will not sit on her eggs in confinement, and the attempt to hatch the eggs under domestic hens, as is done in Oregon, was not encouraging, as most of the chicks died when quite young. As a result of this experiment a few birds were turned loose, but we believe that better results will be obtained by turning the birds loose in favorable localities. A large number of birds have been imported into different sections of the State, notably in Santa Clara, Kern, and Tehama counties, and turned loose, and the most encouraging reports come to us regarding their welfare. We are of the opinion that this pheasant can readily adapt himself to the natural conditions of our State, and believe that the start already made to acclimatize him will be successful.

GAME PRESERVATION.

The Commission has given the matter of the protection and cultivation of game considerable attention since the last Legislature made the appropriation applicable to game as well as to fish. It has been the practice of this and former Boards to give game all the protection possible, although no funds had ever before been provided for this work. With the small force of men at our disposal, the vast area to be covered, and the varied

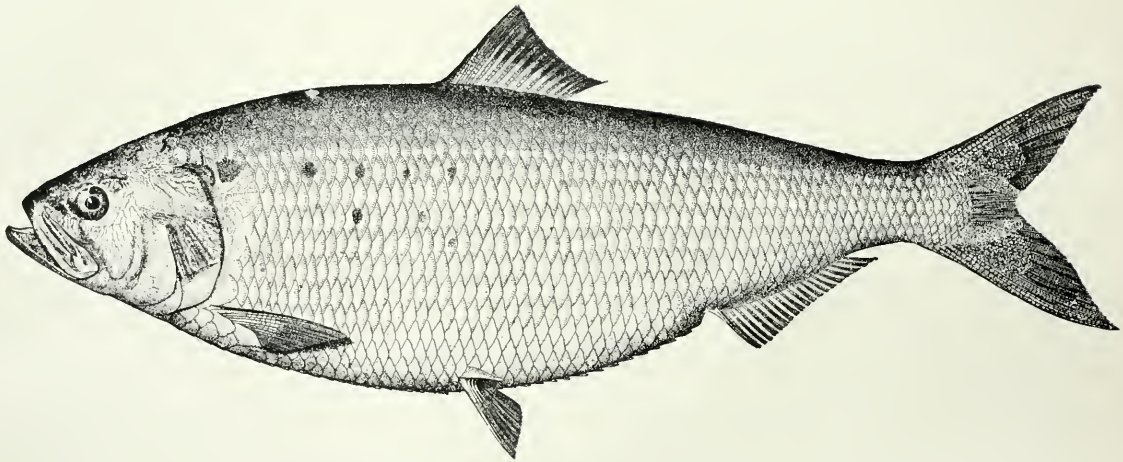
fish interests demanding attention, it has not been possible to give this matter the attention it deserves.

We are of the opinion that the protection and propagation of fish and game will be best subserved by a division of the work, giving to one set of officers the fish-cultural work and the supervision of the commercial fish interests, and to the other the enforcement of the game and game-fish laws.

In order that we might inform ourselves and the better present the matter of game protection to you and the Legislature, and suggest the method most likely to be a success in California, we put ourselves in correspondence with the Fish Commissions and Wardens of the different States, asking for information concerning the protection of game, the success of the present methods, whatever they might be, and their ideas of the method most likely to accomplish the desired end. In many of the States, wardens are working under laws which enable them to thoroughly protect the game during the close season. Without a single exception all agree that the State is a great gainer when the proper attention is paid to game protection. In several of the States giving the most attention to game protection and cultivation, the fish and game interests are in the hands of one commission, which appoints and controls a game warden and his deputies, and these commissions report good results. In most of the States, however, the commissioners agree with us that, in order to get the best results, the game and fish interests should be separated.

In 1891 Minnesota took up the question of game preservation and enlarged the Fish Commission from three to five members, and made them the Board of Game and Fish Commissioners. They have an appropriation of $20,000, of which $9,000 is set aside for the salaries and expenses of game wardens. They also appoint an executive agent and superintendent of fisheries. Ohio has a Fish and Game Commission of five members, who appoint a warden. They have an appropriation of $9,500 per annum. These two States can combine the management of the two interests to good advantage, as their natural conditions are favorable to it. This statement is also true of Wisconsin, with an annual appropriation of $25,000. The game warden is appointed by the Governor, and is under the control of the Commission of Fisheries. This Commission favors the combining of the management of the two interests, but states that under existing circumstances the plan does not work well.

New York and New Jersey are very much alive to the necessity of liberal support in these matters, as the amount of their appropriations show. New York expends $72,000 annually, and New Jersey $30,000. In 1895 New York consolidated her Fisheries and Forest Commissions, and placed the work in the hands of the Fisheries, Game, and Forest



SHAD.—*Alosa sapidissima.*

Commission, composed of five members, the president receiving a salary of $5,000, and the others $1,000 per annum, with necessary expenses. They appoint a chief warden and thirty-six deputies, all under salary. New Jersey has a Fish and Game Commission of four members. The law provides for the appointment of twenty-five wardens, at a salary of $600 a year each, with an allowance of $200 a year for traveling expenses. These wardens are appointed by the Board of Fish and Game Commissioners, and out of the number so appointed the Board selects one to be chief fish and game protector, at a salary of $1,200 a year.

It will therefore be seen that Minnesota, Wisconsin, Ohio, New York, and New Jersey all have large commissions, and the work is so divided among them that each branch receives its merited attention, and with their liberal appropriations they are able to employ a sufficient number of men to thoroughly cover their territory. With the exception of Ohio, these States are among the foremost in fish culture. With the exception of New York and New Jersey, none of these States have fisheries corresponding to our commercial fisheries, and this is true of New York only to a very limited extent. On the other hand, with the exception of the shell-fish industry, we have fisheries corresponding to all those found in any of the above-mentioned States, and, in addition, the salmon fishery, which ranks second in value in the United States; consequently, our fisheries, being more extensive than any of the States whose commissions advocate the consolidating of the management of the fish and game interests, demand more attention from us than do the fisheries of these other States. Our extended coast-line, along which the fisheries are developing, and demanding more careful attention year by year, is also a factor which does not enter into the work of any of these States, except New York and New Jersey, and with them only to a limited extent. Another factor entering into this comparison of the work necessary for game protection in this and the States named, is our vast area, almost equal to all of them combined. Quoting from the report of the California Fish Commission for 1893–94:

"There is but one State which exceeds us in area; nine that have more salt-water area (gulfs, bays, sounds, etc.), and four that have more fresh-water area (lakes, rivers, etc.); but six States have more miles of developed coast-line (or main land in the direction of the ocean), and but one State—Florida—has more miles in general or straight coast-line."

The Commission of Inland Fisheries and Game of Massachusetts deems it wiser to consolidate the management of the two interests, but from its reports we do not find that much attention is paid to game protection. They are given an appropriation of $14,000 per annum. The other States favoring the consolidation referred to are Kansas and Utah. Both being inland States, the management of the fish and game interests

can perhaps be combined with advantage. In both these States the Fish and Game Commissioner is a salaried officer.

The Fish and Game Commission of Connecticut is allowed $1,500 per year for salaries and expenses. They favor the consolidation of these interests. Their appropriations are all made for the propagation of fish. They say: "This State is doing substantially nothing to preserve game. It is advisable to protect the game of the State, and if not soon done there will be none to protect. This State should pay its Commissioners far better, and should make larger appropriations for the use of the Commission. * * * We hope for better things at the next session."

The Vermont Fish and Game Commission, while favoring a consolidation for their State, say: "We think it depends much upon the size of the State, the amount of work expected to be done," etc. This commission has been greatly aided by the Vermont Fish and Game League, which has paid bills not legally acceptable to the State Auditor.

The New Hampshire Fish and Game Commission write: "We favor one commission in an inland State and two in a seaboard State."

Michigan has a Fish Commission and a Game and Fish Warden, and while the Fish Commission favors the placing of the administration of the fishery laws in its hands, it deems it wiser to keep the game and fish interests separated. The Commissioners say: "The propagation, distribution, and protection of game and game-fish is well enough, and is a matter to which the State may well give attention; but, in our opinion, the State is more deeply interested in the propagation, distribution, and protection of commercial fish than in anything else. Any Fish Commission which gives up its time to propagation, distribution, and protection of game and game-fish alone, is not living up to its possibilities." Michigan is fully alive to the value of this work, and shows it by appropriating $33,200 annually for its maintenance.

Pennsylvania has a Fisheries Commission and a Game Commission, each composed of six members. The annual appropriation for the use of the Fisheries Commission is $22,500. The Game Commission is given no appropriation. The Fish Commissioners favor the continuation of the existing conditions, and say: "In our State the fishing interests are many times more valuable than the game interests, so much so that the Fish Commission has always opposed mingling one with the other."

Maryland has maintained a Fish Commission for many years, and at the last session of the Legislature passed an Act authorizing the appointment of a game warden. He, as well as the two Fish Commissioners, are salaried officers.

In 1893 the State of Oregon appointed a fish and game protector under salary, who succeeded the Fish Commission, composed of three members. He writes: "From nearly four years' experience I have become convinced

that it would be better to separate the authority and responsibility for the enforcement of the laws for the protection of food fish from that of the protection of game."

The Fish Commissioner of Washington writes: "I do not think that the protection of fish and game should be under one Commission, for the reason that, in our State, the commercial importance of the fisheries is so great that it demands the entire attention of one Commissioner and his deputies. I think the interests of the State would be best served by keeping the commissions for the protection and fostering of fish and game entirely separate. This State makes no appropriation for the protection of its game. I am of the opinion that a sufficient amount should be appropriated to allow the game warden a fair salary for himself and deputies, and also a reasonable amount for traveling and incidental expenses."

The Iowa and Nevada Fish Commissioners both favor consolidation, and believe in the protection of game, although this subject is receiving no attention in either State. Good work, however, is being done in fish culture.

There is a division of the work in Rhode Island, and the Commissioners of Inland Fisheries advocate a continuation of this policy, believing that it "requires men of especial fitness" for each department.

Colorado has four game wardens, who receive a salary of $1,200 per year. The Fish Commissioner also receives a salary of $1,200 as game warden. An ex-Commissioner writes: "I think that the two branches of work should be separate. The union of the two branches interferes with each other in various ways in our State."

The Secretary of the Illinois Fish Commission writes: "Personally, I am of the opinion that the supervision of the fisheries is a work by itself, and that the enforcement of the game laws should be in the hands of an entirely different set of men. I think the best interests of the State demand that the work should be divided." Illinois has three salaried game wardens, who are charged with the enforcement of the game laws.

In reply to our question as to whether or not one Commission could supervise both interests with saving to the State, the Commissioner of Fisheries of Indiana replied: "It may be a *direct* saving to the State in money, but not in game and fish."

The President of the Game and Fish Commission of Montana says: "Under the present circumstances, with no appropriation, one commission is sufficient, but if we had an appropriation I think the interests demand separate game and fish commissions."

The Fish Commissioner and State Game and Fish Warden of Wyoming writes: "I think that the supervision of the fisheries and the enforcement of the game laws are not closely connected in this State,

and I know that the Fish Commission cannot properly attend to both. It is to the State's best interests, in my opinion, to have the work divided; each one will then receive more attention."

The Fish Commissioner of North Dakota says: "I do not think one commission can supervise both divisions with saving to the State. Its best interests, in my opinion, will be promoted by placing efficient officers at the head of the two departments."

The State of Maine has divided the work by creating two commissions, that of Inland Fisheries and Game, having three members, and the Commission of Coast and Sea Fisheries, composed of one member. They each receive a salary of $1,000 a year, with necessary expenses. The Commissioners of Inland Fisheries and Game are allotted an appropriation of $25,000 besides, and the Commissioner of Coast and Sea Fisheries has a special appropriation for his use. The former commission appoints the necessary number of wardens, who receive $2 per day and expenses for every day actually employed. One of the Commissioners writes: "The value of fish and game is estimated at $3,000,000 annually. The fish are of more value to Maine than her game—twice as much, I should say. One half of our appropriation is expended in the protection of the game, which is increasing very rapidly, especially the deer, which I honestly believe are more numerous than sheep. I have been on the commission since 1872. At the start the appropriation was only $1,200 per year; since then it has gradually increased, and to-day the fish and game is one of the first, if not *the* first interest in the State, and brings in more revenue according to the money expended than any other interest we have. What we are doing the most of at present is the stocking of new lakes with new varieties of fish."

Many of the conditions existing in this State are different from those existing in the States referred to, and for that reason we cannot pursue the policy followed by any one of them. Situated as we are, on the borders of an ocean, rich in fish beyond compare, with two great rivers emptying into large bays, and with countless lakes and streams among the mountains, we certainly have greater natural facilities for the preservation and propagation of fish than any other State in the Union.

The figures given in this report testify to the fact that the value of our fisheries, under the supervision which the State Boards of Fish Commissioners have given them, are increasing; and that, under a continuance of this policy, the State must take the rank which is properly hers and continue to build up an industry which will make returns a thousandfold.

The natural conditions of our State are also most favorable for game, and yet we are not giving the question of its preservation the attention it is receiving at the hands of most of the other States. It does not behoove the State to continue to neglect the game interests. We should

Tahoe City Hatchery.—California Fish Commission.

rather follow the example set by other States, none of which are more favored in this regard than are we. Minnesota, Michigan, Wisconsin, New York, Maine, New Jersey, Ohio, Colorado, New Hampshire, Vermont, Maryland, Oregon, Illinois, and Wyoming are yearly giving this subject more attention and more generous appropriation. The Fish Commission of this State certainly has its hands full in attending to the commercial fisheries, without caring for the great and varied game interests. We therefore believe that it would be for the best interests of the State to give to another commission or officer the enforcement of the game and game-fish laws, and leave to the Board of Fish Commissioners only the propagation of fish and the supervision of the commercial fisheries.

GAME. STATISTICS.

We are aware of the fact that to preserve the game for the sportsman, be he local or foreign, means the turning of many dollars into the hands of our people. If for no other reason than this, we could not fail to point out to you and the Legislature the advisability of protecting our game, but it means more than this. We herewith present a statement of figures taken from the books of all the game dealers of San Francisco and Los Angeles, showing the receipts of game for the entire season by counties, and one giving them by months, for the pupose of showing the magnitude of this interest. Statements more in detail will be found in the Appendix.

TABLE No. 1—PROTECTED BIRDS.

Showing Receipt of Game Birds in San Francisco and Los Angeles Markets, and Counties from which same were shipped, during Season of 1895-96.

From County of—	Canvas-back.	Mallard.	Sprig.	Teal.	Widgeon.	Small Ducks.	Gray Duck.	Black-jack.	Red-head.	Butter-balls.	Wood Ducks.	Wire-tails.	Shel-drake.	Quail.	Doves.	Rail.
Alameda	126	24	383	611	92	309		2						2,445		
Butte	6	262	155	452	171	49								80		
Calaveras		27	5	43	16	8								5,239	65	
Colusa	25	1,129	488	371	503	124		11	12	3	7			507	8	
Contra Costa	420	1,435	850	986	578	408	359	684	4	4	26			399	5	
Fresno	9	2,215	2,067	2,654	1,779	275		2	5				1	964	1	
Glenn	3	82	166	1,722	2,003	11		1				5		78		
Kern	195	784	2,163	6,338	1,870	7,398		11	85	3			14	9,800	384	13
Kings	159	1,853	1,661	2,498	906	1,285	28	19	9	2	1		4	4,342	638	
Los Angeles	50	155	880	3,110	1,007	1,252				17				11,026	1,265	
Mariposa		149	54	51	41	21								953		
Marin	30	33	17	75	16	49			1					1,696		
Madera	1	40	57	43	37	14			12					308	38	
Mendocino														250		
Merced	79	7,255	5,816	27,211	13,743	2,928	14	34	8		4		143	2,753	20	
Monterey	131	88	52	113	448	67								39,831	72	
Napa	4	104	130	1,059	247	241										
Orange	60	156	1,085	1,157	605	1,246								8,351	1,568	8
Placer														247		
Plumas		83	31	5	2											
Riverside				1										2,071	82	
San Benito	26	326	20	28	23	26		5						12,663	34	
San Bernardino		37	95	124	108	17								8,474	380	1
San Diego	12	11	84	382	197	269	1	8						9,679	63	
San Joaquin	115	7,879	1,936	4,210	2,095	1,168	15	356	25	29	13	6	12	1,104		
San Luis Obispo	98	126	128	220	645	126		23	2	10	3			25,526	99	
San Mateo	7	3	5	31	2	4	2							2,728		
Santa Barbara	432	40	36	278	729	67	5	3	6					7,108		
Santa Clara	11	149	69	251	40	57				2				700		
Santa Cruz														736		
Sacramento	401	2,872	1,456	1,819	1,927	1,528	52	46	44	63	13			2,773	2	3
Shasta	56	304	66	111	110	48		18	2							
Solano	785	4,547	2,530	3,813	3,271	1,527	12	573	44	68	25	3	12	120	32	
Sonoma	996	107	222	610	170	283		18		3				7,238	121	2
Siskiyou	465	1,177	740	936	810	264	170	21	9	7			5	283		
Stanislaus	24	2,177	2,566	10,572	4,652	881		23	1	11			1	2,189	54	
Sutter	237	2,908	2,397	1,747	2,463	675	13	63	48	16	36	6	2	89		
Tulare		685	352	1,102	60	223						2		480	110	
Tuolumne														1,187	2	
Ventura		2	3	7								14		890	117	
Yolo	1,290	8,018	5,807	7,545	10,963	2,909		79	201	17	310	53	17	382		
Yuba	6	327	450	239	193	95		1	1	10				1,377		
Totals	6,259	47,565	35,022	82,525	52,522	25,882	671	2,001	519	328	440	89	217	177,366	5,160	27

TABLE No. 2—NON-PROTECTED BIRDS.

Showing Receipt of Game Birds in San Francisco and Los Angeles Markets, and Counties from which same were shipped, during Season of 1895-96.

From County of—	Larks.	Wild Pigeon.	Common Snipe.	English Snipe.	Curlew.	Plover.	Gray Geese.	White Geese.	Brant.	Honker.	Swan.	Crane.	Bittern.
Alameda		12	46	11	6								
Butte							110	46	141				
Calaveras	845	5		1			10		2	2			
Colusa				6			252	43	404	2	9		
Contra Costa	39		29	312	5	93	288	74	148	160		6	
Fresno			2	26			2,222	667	1,464	277	20	57	
Glenn				9			140	147	707	5	2		
Kern		12	617	242	23	19	57	23	47	2	7		
Kings		15	2	42	2		663	167	740	80		27	
Los Angeles			738	624	551	789	17	16					
Mariposa				1			13	21	2	12	6	2	
Marin				19									
Madera	14		7	1			35	3	17				
Merced	81		319	530	108	24	6,422	5,005	7,040	583	43	136	
Modesto							47	8	7				
Monterey	24	92		63			8			8	2		
Napa									1				
Orange			1,194	635	454	519	39	44					
Plumas							22	19	35	82		12	
San Benito	8			31			137	1	9				
San Bernardino			1	13		99							
San Diego				3									
San Joaquin			29	870		5	1,072	351	198	205	3	41	
San Luis Obispo		63	3	794	7	13	16	2	18				
San Mateo			10	22									
Santa Barbara			6	72		3		26			3		
Santa Clara				356			8				4		
Santa Cruz				3									
Sacramento	1	31	1	350		51	669	129	27	24	13		18
Shasta				6									
Solano	118	26		646	8	3	1,262	852	806	557	61	70	3
Sonoma	229	38	56	76			1		1	10			
Siskiyou			5	61			1	3	6				
Stanislaus	44	22	70	192	7		2,763	1,755	2,955	245	5	18	
Sutter			7	7			878	262	1,054	25	111	7	
Tulare	120	119	1	27		1	68	22	58	14		1	
Yolo	31	74	9	393	2	1	2,167	553	428	115	229	6	4
Yuba				2			32	15	4	3		2	
Totals	2,354	512	3,145	6,446	1,173	1,620	19,419	10,251	16,319	2,411	518	385	25

TABLE No. 3.

Showing Receipt of Game Birds in San Francisco and Los Angeles Markets, by Months, and giving Value of Each Variety, for Season 1895–96.

Month.	Canvas-back.	Mallard.	Sprig.	Teal.	Widgeon.	Small Ducks.	Gray Duck.	Black-jack.	Red-head.	Butter-balls.	Wood Ducks.	Wire-tails.	Shel-drake.	Quail.	Doves.
October	58	1,057	1,528	5,374	1,469	357	----	52	8	----	140	----	5	2,419	180
November	1,569	15,034	10,261	19,016	15,903	4,959	206	247	116	9	37	2	4	57,112	2,517
December	2,360	18,056	10,614	33,176	19,544	12,809	321	333	281	96	123	56	32	70,370	1,112
January	1,995	10,831	9,230	19,035	12,809	7,049	144	1,192	43	189	138	31	176	41,374	1,158
February	277	2,587	3,389	5,924	2,797	708	----	177	71	34	2	----	----	6,091	193
Totals	6,259	47,565	35,022	82,525	52,522	25,882	671	2,001	519	328	440	89	217	177,366	5,160
Value	$2,626 00	$11,891 50	$5,305 50	$8,662 45	$6,659 58	$2,227 20	$98 00	$116 75	$79 58	$26 75	$36 67	$6 83	$18 00	$15,116 08	$252 73

Month.	Rail.	Larks.	Wild Pigeon.	Common Snipe.	English Snipe.	Curlew.	Plover.	Gray Geese.	White Geese.	Brant.	Honker.	Swan.	Crane.	Bittern.	Total Value.
October	----	166	96	184	130	23	9	2,381	932	714	----	----	34	----	----
November	4	369	155	1,149	1,903	289	549	5,599	1,823	4,837	340	51	82	5	----
December	16	513	57	1,061	2,350	439	603	4,302	1,918	3,845	763	285	85	4	----
January	7	922	151	693	1,700	418	450	4,034	2,564	3,751	881	156	99	16	----
February	----	384	53	58	363	4	9	3,103	3,014	3,172	427	26	85	----	----
Totals	27	2,354	512	3,145	6,446	1,173	1,620	19,419	10,251	16,319	2,411	518	385	25	----
Value	$3 33	$98 00	$42 67	$212 55	$753 88	$45 33	$63 58	$1,042 30	$856 50	$2,040 00	$703 50	$174 25	$192 50	$10 00	$62,362 01

TRAP—BLACKWOOD CREEK—LAKE TAHOE.

The money values here presented are the amounts received by the hunters, to which should be added the profits of the jobber and retailer.

To these figures must also be added the large amount of game which goes directly to the tables of our people, furnished by the army of sportsmen.

This amount of game is considerable as a food-supply, comprising 332,630 pounds of ducks, 37,880 pounds of quail, doves, pigeons, lark, rail, and snipe, and 175,444 pounds of geese, etc. For several reasons these figures do not represent the true commercial value of our game, chiefly because the season was such an unsettled one, and because it has been impossible to reach all of the market centers.

RECOMMENDATIONS.

In recommending to your consideration, and to that of the Legislature, the ways and means by which our fish and game interests may best be served, we would first call your attention to the necessary appropriations for carrying on the work.

The biennial appropriation of $20,000 for the restoration and preservation of fish and game should, in consequence of an additional appropriation for game protection, be reduced to $15,000, and made applicable to the restoration and preservation of fish alone. A biennial appropriation of $10,000 is needed to carry on the work as outlined in the game-warden bill recommended herein. The biennial appropriation for the support and maintenance of State hatcheries should be increased from $15,000 to $20,000, if the demands of our people are to be met, and suitable steps taken to import and distribute additional salt and fresh water food fishes. We would also suggest that an appropriation of $500 be made for a scientific investigation of the Sacramento and San Joaquin rivers, with a view of ascertaining what steps are necessary to increase the run of salmon in those streams.

A form of bill creating the office of State Fish and Game Warden follows, and explains itself:

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. The Governor shall appoint a suitable person to serve as State Fish and Game Warden. Said warden shall hold his office for four years, or until his successor has been appointed and qualified. The Governor shall have power to remove the State Fish and Game Warden for misconduct, incompetency, or neglect of duty, after an opportunity to be heard upon written charges. He shall receive a salary of one thousand two hundred dollars per annum, payable monthly, and shall also be reimbursed his actual expenses necessarily incurred by him while engaged in the performance of his duties, said expenses not to exceed the sum of six hundred dollars per annum.

SEC. 2. Said State Fish and Game Warden shall, before entering upon his duties, execute a bond, with sureties to the State, in the sum of two thousand dollars, for the faithful and proper performance of his duties.

SEC. 3. Said State Fish and Game Warden shall enforce the State fish and game laws in all counties, and the municipal ordinances relating to the protection of fish and game,

and he shall be vested with all the powers of a peace officer to make arrests for the violation of such laws and ordinances.

SEC. 4. Said State Fish and Game Warden shall have power to appoint deputy fish and game wardens, who shall have the same powers and authority herein provided for the State Warden himself, subject to the control and supervision of, and removal by, the State Warden. Said deputy fish and game wardens shall receive three dollars per day for each day actually spent in the discharge of their duties, and their actual expenses necessarily incurred when so employed; but the number of deputy wardens shall not exceed twelve, and the total amount allowed for compensation and expenses of deputy wardens shall not exceed two thousand eight hundred dollars per annum.

SEC. 5. Said State Fish and Game Warden shall also have power to appoint, in each county, a person to serve as County Fish and Game Warden, who shall have the same power and authority herein provided for the State Warden himself, subject to the control and supervision of, and to removal by, the State Warden. Said County Wardens may be employed by individuals, clubs, and corporations interested in the enforcement of fish and game laws, and shall receive such compensation as may be allowed and provided for by the Board of Supervisors of their respective counties. The County Fish and Game Wardens shall also receive the usual constable fees allowed by law for the arrest and conveyance of prisoners to the proper court, said demand for fees to be certified to by the District Attorney of the county in which the arrest is made, and the claim presented to the Board of Examiners of the State, and acted upon by said Board as other claims against the State are acted on, and paid in the same manner, from the appropriations for "Costs and expenses of suits for the violation of fish and game laws," etc.

SEC. 6. Each and every deputy and County Fish and Game Warden shall, upon the first day of every month, file with the State Fish and Game Warden a report of his daily official acts during the preceding month, the number of arrests made, the number of convictions, and such other information as he may deem proper. The State Fish and Game Warden shall submit a biennial report to the Governor, as required by law.

SEC. 7. All Acts and parts of Acts in conflict with this Act are hereby repealed.

SEC. 8. This Act shall take effect from and after its passage.

We recommend that Section 626*i* of the Penal Code, referring to the sale of game birds, be repealed, and the shooting and selling season be made the same. We also recommend that mountain quail and grouse be killed only between September 1st and February 15th; that doves be killed only between August 1st and January 15th.

The words "or have in his possession" should be added to the law relating to the protection of deer—Section 626*c* and Section 626*d* of the Penal Code.

The law protecting pheasants for three years should be reënacted.

We recommend adding the following words to Section 627 of the Penal Code: "Every person who shall, for the purpose of shooting any kind of wild game, conceal himself behind any living animal, shall be guilty of a misdemeanor."

If the Act providing for the appointment of a State Fish and Game Warden becomes a law, the right to issue permits for the trapping and shipping of live game birds should be given to him; and if not, to the Board of Fish Commissioners. No provision for this is now made, except in counties having wardens.

If a warden be appointed, the moneys collected as fines for violations of the game laws should be paid into the State Treasury, and constitute

a fund for the payment of expenses for propagating, protecting, and introducing game birds into the State.

Provision should be made that it shall be no defense for any person to claim that game in his possession was caught or killed outside of this State.

The following recommendations regarding additions and changes deemed necessary in the fish laws are here submitted:

A section should be added to the Penal Code, forbidding the taking of black bass except with hook and line.

The law making it a misdemeanor to sell or possess a lobster of less than one pound in weight should be changed to read "* * * of less than nine and one half inches in length, measured from one extremity to the other, exclusive of legs or feelers."

Section 635, relating to the taking of fish from any pond or reservoir which has been stocked with fish, should be amended so as to enable the Commission to more fully protect the rearing-ponds near our hatcheries. This can be accomplished by adding the words "or controlled by the State Board of Fish Commissioners."

A section should be added to the Penal Code forbidding the taking of female crabs at any time.

The laws relating to the taking of trout need revision, and the following wording is suggested:

SEC. —. Every person who takes, catches, kills, offers or exposes for sale, or has in his possession any rainbow trout (*Salmo irideus*), cut-throat trout (*Salmo mykiss*), eastern brook trout (*Salvelinus fontinalis*), brown trout (*Salmo fario*), Loch Leven trout (*Salmo trutta levenensis*), Mackinaw trout (*Salvelinus namaycush*), Dolly Varden trout (*Salvelinus malma*), or any kind of trout except steelhead trout (*Salmo gairdneri*), taken in tidewater, between the first day of December and the first day of May of the following year, is guilty of a misdemeanor.

SEC. —. Every person who buys, sells, offers or exposes for sale, any steelhead trout (*Salmo gairdneri*), between the first day of December and the first day of February of the following year, is guilty of a misdemeanor.

SEC. —. Every person who buys or sells, or offers or exposes for sale, or has in his possession, any kind of trout less than six inches in length, is guilty of a misdemeanor.

SEC. —. Every person who, at any time, takes or catches any trout except with hook and line, is guilty of a misdemeanor; *provided, however*, that steelhead trout (*Salmo gairdneri*) may be taken in tidewater between the first day of February and the first day of May, with lawful nets. A lawful net shall be considered a net that, when placed in the water, is unsecured and free to float with the current or tide, and the meshes of which are, when drawn closely together and measured inside the knot, not less than seven and one half inches in length.

It should be made a felony to use any explosive for the taking or killing of fish. Under the present law it is made a misdemeanor, and the punishment does not fit the crime.

The netting of fish in any stream upon which is located a State hatchery should be forbidden. A law to this effect already gives protection to United States hatcheries.

We recommend adding to the laws relating to the protection of sal-

mon an amendment to the effect that the plea of fishing for other kinds of fish will not constitute a defense, for the reason that such plea is often successfully interposed in a trial before a jury.

We also suggest that a law be enacted making it no defense, in any action, to contend that the fish were caught or taken outside the State.

The enforcement of the laws governing the commercial fisheries should be left with the Fish Commission, and not made a part of the duties of the Fish and Game Warden. All moneys collected as fines for the violations of the fish laws should be paid into the Fish Commission Fund.

The law for the prevention of the dumping of deleterious substances into State waters, which now reads, "Every person who places or allows to pass into any waters of the State any lime," etc., should be amended and made to read, "Every person who places or allows to pass, *or who places where it can pass,* into any of the waters," etc.

Some minor changes in the wording of the different sections pertaining to fish or game, which will make the filing of complaints and the prosecution of offenders less difficult, have been submitted to the Code Commissioners for their consideration.

If the Legislature deem it wise to follow out these suggestions, we are confident that the path of the poacher will be seriously obstructed, and the interests of both fish and game greatly benefited.

ACKNOWLEDGMENTS.

So many courtesies and kindnesses have been shown your Commission by the people of our State that we feel under great obligations to them, and would be glad to make acknowledgment individually, did space permit. We desire specially to acknowledge the donation of fish and eggs from the United States Commission of Fish and Fisheries, and the kindly disposition shown to aid us in every way to increase the productiveness of California waters. We are also indebted to them for various statistics inserted in the pages of this report.

Our thanks are due the various railroads of the State for the free transportation of fish and men accorded us; for without this courtesy it would have been impossible for us to have accomplished what we have. We also express our thanks to their employés, who have aided our men in many ways.

We have been obliged to call upon Attorney-General Fitzgerald many times for opinions upon various subjects, and for aid in prosecuting various offenders against the fish and game laws. He has at all times met our demands upon his time with promptness, and given us every assistance in his power, and we extend to him and his assistants our hearty thanks.

Messrs. Washburn and M. Lawrence & Co. have merited our gratitude for the various kindnesses extended our men, and deserve the

TALLAC HATCHERY.—CALIFORNIA FISH COMMISSION.

thanks of our people for their generous actions in assisting us in our work in their localities.

Our thanks are due to the officers stationed in the Yosemite National Park for courtesies extended, and especially to Col. S. B. M. Young, Capt. Alex. Rodgers, Lieuts. H. C. Benson, J. M. Neall, S. McP. Rutherford, Fourth Cavalry, U. S. A., and Lieut. N. F. McClure, Fifth Cavalry, U. S. A., and the men of their commands.

We desire to thank the Sacramento River Packers Association and the Carquinez Packing Company for the substantial aid given us in the erection of the Battle Creek hatchery. We have also received various statistics from them.

To Mr. F. R. Lowe we extend thanks for his kindness in furthering the success of the Battle Creek station by giving us the use of such land as was necessary.

We are indebted to the San Diego Flume Company, the Benicia Water Company, and Mr. James L. Flood for allowing us to take fish for stocking purposes from waters controlled by them.

Our thanks are due Drs. David Starr Jordan and Charles H. Gilbert, of Stanford University, for their services in the classification of fishes and other matters where they have been called upon to aid us. Dr. Gilbert has about completed an examination of our waters, the result of which we had hoped to be able to include in this report.

We have received substantial aid from the various clubs interested in furthering the fish and game interests throughout the State, and especially from the Visalia Sportsmen's Association, Humboldt County Fish and Game Club, Gilroy Sportsmen's Association, Tule River Hunting and Fishing Association, the Salinas Gun Club, and the Sierra Nevada Sportsmen's Club.

We desire to thank the following market dealers for their kindness in allowing our deputies to take various figures of the receipts of fish and game from their books: American Union Fish Co., A. Paladini, G. Camilloni & Co., J. Kessing & Co., Pacific Coast Fish Co., B. Caito, Milani & Co., Pioneer Fish Co., S. Tarintino & Co., Fabris & Rivola, Vegilio, A. Parmisano, A. Bellanti, Campodonico-Malcolm Co., A. L. B. Immel & Co., H. Heckman & Co., L. Scatena & Co., C. Nauman & Co., J. Miller & Co., L. Dolheguy & Co., B. G. Ruhl & Co., J. H. Cain & Co., B. Miller, Compagno & Co., S. Levy & Co., L. Dallman & Co., Leon & Co., O'Brien & Sportorno, Lemoine & Co., D. E. Allison & Co., and A. Fodera, of San Francisco; Haniman Fish Co., Morgan Oyster Co., San Pedro Fish Co., Standard Fish Co., Ferraris Bros., and Pacific Coast Fish Co., of Los Angeles.

We believe that the best interests of the people have been promoted in the matters by law entrusted to us during the last two years, and we trust that the work so well inaugurated will, under the revised laws

and increased appropriations which the Legislature should grant, be carried forward until our fishery industry is as productive as the possibilities warrant.

We desire to express the pleasure we have experienced in the confidence you have shown in us, as also in serving under your administration.

Yours respectfully,

WM. C. MURDOCH,
H. F. EMERIC,
Commissioners.

San Francisco, September 1, 1896.

TAKING SPAWN.—TAYLOR CREEK—LAKE TAHOE.

APPENDIX

TO

FOURTEENTH BIENNIAL REPORT

OF

BOARD OF FISH COMMISSIONERS,

FOR THE YEARS 1895 AND 1896.

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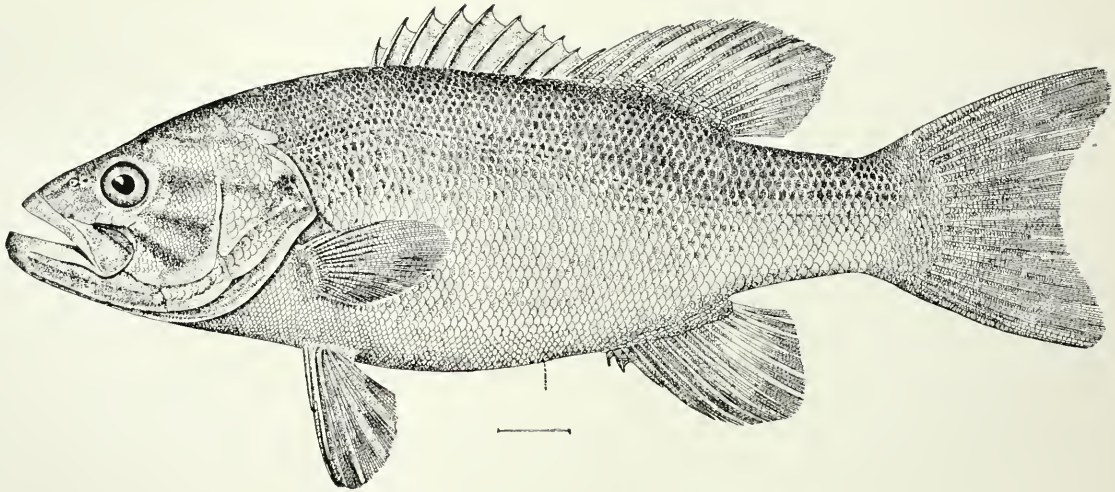


SMALL MOUTH BLACK BASS.—*Micropterus dolomieu.*

FINANCIAL STATEMENTS.

APPROPRIATION FOR RESTORATION AND PRESERVATION OF FISH IN THE WATERS OF THE STATE.

Warrants Drawn during the Forty-sixth Fiscal Year, ending June 30, 1895.

1894.				
July	1	Balance on hand		$150 00
July	1	Amount appropriated		10,000 00
July	1	J. J. Deane, office rent, July	$30 00	
Aug.	1	J. P. Babcock, salary and expenses, July	140 60	
Aug.	1	A. W. Wilson, salary and expenses, July	107 75	
Aug.	1	A. G. Fletcher, salary and expenses, July	85 60	
Aug.	1	W. R. McFarland, salary and expenses, July	191 00	
Aug.	1	J. J. Deane, office rent, August	30 00	
Sept.	1	C. F. Selvage, salary and expenses, July	74 00	
Sept.	1	J. P. Babcock, salary and expenses, August	195 30	
Sept.	1	A. W. Wilson, salary and expenses, August	181 70	
Sept.	1	W. R. McFarland, salary and expenses, August	188 65	
Sept.	1	A. G. Fletcher, salary and expenses, August	143 10	
Sept.	1	Holbrook, Merrill & Stetson, fish-shipping cans	120 00	
Sept.	1	J. J. Deane, office rent, September	30 00	
Sept.	1	W. P. Huestis, salary and expenses, August	103 75	
Oct.	2	J. P. Babcock, salary and expenses, September	184 10	
Oct.	2	A. W. Wilson, salary and expenses, September	165 75	
Oct.	2	W. R. McFarland, salary and expenses, September	160 70	
Oct.	2	A. G. Fletcher, salary and expenses, September	97 30	
Oct.	2	J. J. Deane, office rent, October	30 00	
Oct.	2	W. P. Huestis, salary and expenses, September	106 65	
Oct.	2	F. P. Deering, salary, July	100 00	
Oct.	2	F. P. Deering, salary, August	100 00	
Oct.	2	F. P. Deering, salary, September	100 00	
Oct.	2	J. P. Babcock, bill of N. P. C. Ry., water rent	35 00	
Nov.	1	J. P. Babcock, salary and expenses, October	159 25	
Nov.	1	Livingston Stone, hauling salmon eggs	111 77	
Nov.	1	A. G. Fletcher, salary and expenses, October	124 60	
Nov.	1	A. W. Wilson, salary and expenses, October	127 50	
Nov.	1	W. R. McFarland, salary and expenses, October	121 55	
Nov.	1	W. P. Huestis, salary and expenses, October	82 10	
Nov.	1	F. P. Deering, salary, October	100 00	
Nov.	15	J. J. Deane, office rent, November	30 00	
Dec.	1	J. J. Deane, office rent, December	30 00	
Dec.	1	J. P. Babcock, salary and expenses, November	193 75	
Dec.	1	A. W. Wilson, salary and expenses, November	113 90	
Dec.	1	W. R. McFarland, salary and expenses, November	102 00	
Dec.	1	A. G. Fletcher, salary and expenses, November	142 35	
Dec.	1	W. P. Huestis, salary and expenses, November	79 20	
Dec.	31	J. P. Babcock, salary and expenses, December	193 75	
Dec.	31	A. W. Wilson, salary and expenses, December	119 00	
Dec.	31	W. R. McFarland, salary and expenses, December	113 25	
Dec.	31	A. G. Fletcher, salary and expenses, December	104 30	
Dec.	31	W. P. Huestis, salary and expenses, December	85 50	
1895.				
Jan.	1	J. J. Deane, office rent, January	30 00	
Feb.	1	J. P. Babcock, salary and expenses, January	172 15	
Feb.	1	A. W. Wilson, salary and expenses, January	100 00	
Feb.	1	W. R. McFarland, salary and expenses, January	126 35	
Feb.	1	A. G. Fletcher, salary and expenses, January	93 85	
Feb.	1	W. P. Huestis, salary and expenses, January	86 05	
		Amount carried forward	$5,443 12	$10,150 00

RESTORATION AND PRESERVATION OF FISH—Continued.

1895.	Amount brought forward	$5,443 12	$10,150 00
Feb. 1	Livingston Stone, hauling salmon eggs	29 28	
Feb. 1	J. J. Deane, office rent, February	30 00	
Feb. 28	J. P. Babcock, salary and expenses, February	184 70	
Feb. 28	A. W. Wilson, salary and expenses, February	107 25	
Feb. 28	W. R. McFarland, salary and expenses, February	172 85	
Feb. 28	A. G. Fletcher, salary and expenses, February	103 30	
Feb. 28	W. P. Huestis, salary and expenses, February	88 80	
Mar. 1	L. C. Fraser, office rent, March	30 00	
Mar. 31	J. P. Babcock, salary and expenses, March	171 65	
Mar. 31	A. W. Wilson, salary and expenses, March	107 45	
Mar. 31	W. R. McFarland, salary and expenses, March	172 00	
Mar. 31	A. G. Fletcher, salary and expenses, March	129 45	
Mar. 31	W. P. Huestis, salary and expenses, March	68 95	
April 1	L. C. Fraser, office rent and janitor, April	35 00	
April 30	J. P. Babcock, salary and expenses, April	180 85	
April 30	A. W. Wilson, salary and expenses, April	132 90	
April 30	W. R. McFarland, salary and expenses, April	166 80	
April 30	A. G. Fletcher, salary and expenses, April	149 50	
April 30	W. P. Huestis, salary and expenses, April	87 50	
April 30	J. H. Davis, salary and expenses, April	175 25	
May 1	L. C. Fraser, office rent and janitor, May	35 00	
June 1	J. P. Babcock, salary and expenses, May	157 65	
June 1	A. W. Wilson, salary and expenses, May	169 10	
June 1	W. R. McFarland, salary and expenses, May	177 55	
June 1	A. G. Fletcher, salary and expenses, May	132 90	
June 1	J. H. Davis, salary and expenses, May	185 45	
June 1	W. P. Huestis, salary and expenses, May	74 75	
June 1	W. R. Stearns, salary and expenses, May	56 35	
June 1	L. C. Fraser, office rent and janitor, June	35 00	
June 30	J. P. Babcock, salary and expenses, June	170 90	
June 30	A. W. Wilson, salary and expenses, June	170 45	
June 30	W. R. McFarland, salary and expenses, June	152 25	
June 30	J. H. Davis, salary and expenses, June	187 00	
June 30	W. P. Huestis, salary and expenses, June	92 75	
June 30	W. R. Stearns, salary and expenses, June	121 10	
June 30	R. W. Requa, salary and expenses, June	61 00	
June 30	H. S. Crocker Co., office supplies	12 68	
June 30	Union Ice Co., ice	9 20	
June 30	Holbrook, Merrill & Stetson, fish-shipping cans, etc.	298 25	
June 30	W. R. Stearns, bill N. P. C. Ry., water rent	38 00	
June 30	Southern Pacific R. R., hauling Fish Commission car No. 3 from Ogden	46 07	
	Totals	$10,150 00	$10,150 00

APPROPRIATION FOR RESTORATION AND PRESERVATION OF FISH AND GAME.

Warrants Drawn during Forty-seventh Fiscal Year, ending June 30, 1896.

1895.	Amount appropriated		$10,000 00
Aug. 1	J. P. Babcock, salary and expenses, July	$154 30	
Aug. 1	A. W. Wilson, salary and expenses, July	142 25	
Aug. 1	J. H. Davis, salary and expenses, July	156 05	
Aug. 1	W. R. McFarland, salary and expenses, July	160 45	
Aug. 1	W. P. Huestis, salary and expenses, July	72 00	
Aug. 1	W. R. Stearns, salary and expenses, July	130 80	
Aug. 1	L. C. Fraser, office rent, July	35 00	
Aug. 1	L. C. Fraser, office rent, August	35 00	
Sept. 1	J. P. Babcock, salary and expenses, August	171 05	
Sept. 1	W. R. McFarland, salary and expenses, August	127 35	
Sept. 1	R. W. Requa, salary and expenses, July	188 70	
Sept. 1	R. W. Requa, salary and expenses, August	178 20	
Sept. 1	W. P. Huestis, salary and expenses, August	64 00	
Sept. 1	W. R. Stearns, salary and expenses, August	132 50	
	Amount carried forward	$1,747 65	$10,000 00

RESTORATION AND PRESERVATION OF FISH AND GAME—Continued.

1895.		Amount brought forward	$1,747 65	$10,000 00
Sept.	1	A. W. Wilson, salary and expenses, August	141 45	
Sept.	1	J. H. Davis, salary and expenses, August	179 65	
Sept.	1	L. C. Fraser, office rent, September	35 00	
Sept.	1	Mary C. Rowson, launch "Hustler," August	110 00	
Oct.	1	J. P. Babcock, salary and expenses, September	161 70	
Oct.	1	A. G. Fletcher, salary and expenses, September	101 25	
Oct.	1	W. P. Huestis, salary and expenses, September	105 00	
Oct.	1	W. R. Stearns, salary and expenses, September	132 81	
Oct.	1	L. C. Fraser, office rent, October	35 00	
Oct.	1	Mary C. Rowson, launch "Hustler," September	300 00	
Oct.	1	J. H. Davis, salary and expenses, September	170 35	
Oct.	1	A. W. Wilson, salary and expenses, September	161 00	
Nov.	1	J. P. Babcock, salary and expenses, October	250 00	
Nov.	1	A. W. Wilson, salary and expenses, October	174 70	
Nov.	1	J. H. Davis, salary and expenses, October	75 00	
Nov.	1	W. R. McFarland, salary and expenses, October	73 85	
Nov.	1	A. G. Fletcher, salary and expenses, October	96 05	
Nov.	1	W. P. Huestis, salary and expenses, October	117 95	
Nov.	1	W. R. Stearns, salary and expenses, October	137 20	
Nov.	1	L. C. Fraser, office rent, November	35 00	
Nov.	1	Mary C. Rowson, launch "Hustler," October	40 00	
Nov.	1	Livingston Stone, hauling salmon eggs	151 90	
Nov.	1	H. S. Crocker Co., office supplies	8 18	
Dec.	1	J. P. Babcock, salary and expenses, November	194 60	
Dec.	1	A. G. Fletcher, salary and expenses, November	102 15	
Dec.	1	W. R. McFarland, salary and expenses, November	206 15	
Dec.	1	J. H. Davis, salary and expenses, November	128 70	
Dec.	1	W. P. Huestis, salary and expenses, November	92 10	
Dec.	1	W. R. Stearns, salary and expenses, November	111 20	
Dec.	1	L. C. Fraser, office rent, December	35 00	
Dec.	1	Pacific T. & T. Co., rent of telephone, November	8 55	
Dec.	31	W. R. McFarland, salary and expenses, December	54 45	
Dec.	31	J. P. Babcock, salary and expenses, December	131 05	
Dec.	31	W. R. McFarland, salary and expenses, December	33 21	
Dec.	31	A. W. Wilson, salary and expenses, December	106 50	
Dec.	31	W. P. Huestis, salary and expenses, December	89 25	
Dec.	31	J. H. Davis, salary and expenses, December	107 50	
Dec.	31	W. R. Stearns, salary and expenses, December	150 65	
Dec.	31	A. G. Fletcher, salary and expenses, December	85 40	
Dec.	31	R. Helms, Game Warden, expenses	35 00	
1896.				
Jan.	1	L. C. Fraser, office rent, January	35 00	
Feb.	1	A. G. Fletcher, salary and expenses, January	110 20	
Feb.	1	J. H. Davis, salary and expenses, January	138 50	
Feb.	1	A. W. Wilson, salary and expenses, January	146 50	
Feb.	1	W. P. Huestis, salary and expenses, January	90 50	
Feb.	1	W. R. Stearns, salary and expenses, January	133 00	
Feb.	1	J. P. Babcock, salary and expenses, January	148 35	
Feb.	1	Mary C. Rowson, launch "Hustler," January	80 00	
Feb.	1	L. C. Fraser, office rent, February	35 00	
Mar.	1	J. H. Davis, salary and expenses, February	139 35	
Mar.	1	A. G. Fletcher, salary and expenses, February	110 85	
Mar.	1	A. W. Wilson, salary and expenses, February	121 45	
Mar.	1	W. R. Stearns, salary and expenses, February	135 95	
Mar.	1	W. P. Huestis, salary and expenses, February	63 20	
Mar.	1	Mary C. Rowson, launch "Hustler," February	40 00	
Mar.	1	L. C. Fraser, office rent, March	35 00	
April	1	A. W. Wilson, salary and expenses, March	146 55	
April	1	A. G. Fletcher, salary and expenses, March	148 80	
April	1	J. H. Davis, salary and expenses, March	141 05	
April	1	W. R. Stearns, salary and expenses, March	144 65	
April	1	M. L. Cross, salary and expenses, March	146 20	
April	1	S. Rhodes, salary and expenses, March	71 00	
April	1	Mary C. Rowson, launch "Hustler," March	30 00	
April	1	L. C. Fraser, office rent, April	35 00	
May	1	J. P. Babcock, salary and expenses, April	176 15	
May	1	A. G. Fletcher, salary and expenses, April	117 30	
May	1	A. W. Wilson, salary and expenses, April	282 85	
May	1	W. R. Stearns, salary and expenses, April	67 35	
May	1	M. L. Cross, salary and expenses, April	134 50	
		Amount carried forward	$9,416 40	$10,000 00

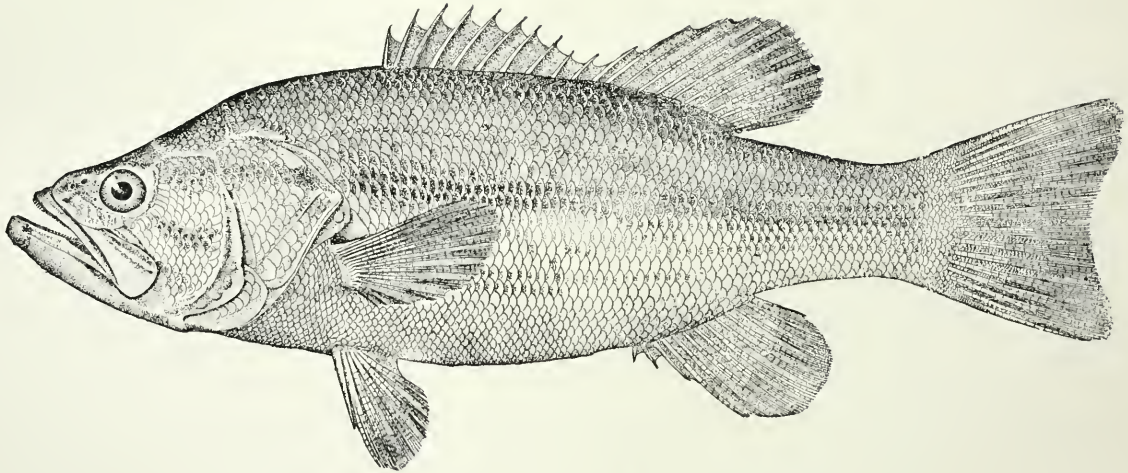
RESTORATION AND PRESERVATION OF FISH AND GAME—Continued.

1896.	Amount brought forward	$9,416 40	$10,000 00
May 1	S. Rhodes, salary and expenses, April	50 75	
May 1	L. C. Fraser, office rent, May	35 00	
June 1	J. P. Babcock, salary and expenses, May	152 20	
June 1	A. W. Wilson, salary and expenses, May	177 00	
June 1	A. G. Fletcher, salary and expenses, May	51 50	
June 1	W. R. Stearns, salary and expenses, May	82 15	
June 1	B. P. Oliver, office rent, June	35 00	
	Totals	$10,000 00	$10,000 00

APPROPRIATION FOR SUPPORT AND MAINTENANCE OF THE STATE HATCHERIES.

Warrants Drawn during the Forty-sixth Fiscal Year, ending June 30, 1895.

1894.			
July 1	Amount appropriated		$7,500 00
Aug. 1	W. H. Shebley, salary and expenses, July	$111 50	
Aug. 1	T. E. Sullivan, salary and expenses, July	60 00	
Aug. 1	Frank Shebley, salary and expenses, July	50 00	
Aug. 1	E. W. Hunt, salary and expenses, July	194 00	
Aug. 1	F. C. Boyce, salary and expenses, July	70 00	
Aug. 10	Scott & Klink, rent of Klink's Lake, and labor	64 00	
Sept. 1	E. W. Hunt, salary and expenses, August	147 75	
Sept. 1	F. C. Boyce, salary and expenses, August	70 00	
Sept. 1	W. D. Sisson, hauling, July and August	87 25	
Sept. 1	Alexander Albee, feed for fry, Sisson	30 95	
Sept. 1	W. H. Shebley, salary and expenses, August	207 52	
Sept. 1	T. E. Sullivan, salary and expenses, August	113 35	
Sept. 1	Frank Shebley, salary and expenses, August	99 39	
Oct. 2	E. W. Hunt, salary and expenses, September	250 20	
Oct. 2	F. C. Boyce, salary and expenses, September	70 00	
Oct. 2	W. H. Shebley, salary and expenses, September	153 60	
Oct. 2	Frank Shebley, salary and expenses, September	118 54	
Oct. 2	T. E. Sullivan, salary and expenses, September	93 75	
Oct. 2	A. G. Fletcher, bill of A. Green for painting roof of Bear Valley Hatchery	15 00	
Oct. 2	W. P. Fuller & Co., paints and oils	21 00	
Oct. 2	L. J. Griffin, carpenter labor, Sisson	84 25	
Oct. 2	McKay & Stewart, lumber for Tahoe Hatchery	89 10	
Oct. 20	J. H. Sharpe, rent of land, Tahoe, to July 1, 1895	50 00	
Nov. 1	W. H. Shebley, salary and expenses, October	190 40	
Nov. 1	T. E. Sullivan, salary and expenses, October	66 25	
Nov. 1	Frank Shebley, salary and expenses, October	56 50	
Nov. 1	E. W. Hunt, salary and expenses, October	113 80	
Nov. 1	F. C. Boyce, salary and expenses, October	32 00	
Nov. 1	Henry D. Curran, labor, Sisson Hatchery	56 50	
Nov. 1	W. D. Sisson, hauling, September and October	59 50	
Dec. 1	E. W. Hunt, salary and expenses, November	26 55	
Dec. 1	W. H. Shebley, salary and expenses, November	169 75	
Dec. 1	T. E. Sullivan, salary and expenses, November	60 00	
Dec. 1	Frank Shebley, salary and expenses, November	50 00	
Dec. 1	W. D. Sisson, hauling, November	23 00	
Dec. 31	W. H. Shebley, salary and expenses, December	177 73	
Dec. 31	T. E. Sullivan, salary and expenses, December	60 00	
Dec. 31	Frank Shebley, salary and expenses, December	50 00	
1895.			
Feb. 1	W. H. Shebley, salary and expenses, January	177 45	
Feb. 1	Frank Shebley, salary and expenses, January	50 00	
Feb. 1	T. E. Sullivan, salary and expenses, January	60 00	
Feb. 1	E. W. Hunt, salary and expenses, January	55 15	
Feb. 1	Mrs. L. M. Sisson, rent of lake to November 15, 1895	50 00	
Feb. 1	Neville & Co., supplies	17 38	
Feb. 1	W. D. Sisson, hauling, December and January	56 75	
	Amount carried forward	$3,909 86	$7,500 00



LARGE MOUTH BLACK BASS.—*Micropterus salmoides.*

SUPPORT AND MAINTENANCE OF STATE HATCHERIES—Continued.

1895.			
	Amount brought forward	$3,909 86	$7,500 00
Mar. 1	W. H. Shebley, salary and expenses, February	205 67	
Mar. 1	E. W. Hunt, salary and expenses, February	137 00	
Mar. 1	T. E. Sullivan, salary and expenses, February	90 50	
Mar. 1	Frank Shebley, salary and expenses, February	55 50	
Mar. 31	W. H. Shebley, salary and expenses, March	182 13	
Mar. 31	T. E. Sullivan, salary and expenses, March	91 50	
Mar. 31	Frank Shebley, salary and expenses, March	99 25	
Mar. 31	E. W. Hunt, salary and expenses, March	195 75	
Mar. 31	W. D. Sisson, salary and expenses, March	25 83	
Mar. 31	W. D. Sisson, hauling, February and March	26 25	
April 9	J. Caire, supplies	52 33	
April 30	W. H. Shebley, salary and expenses, April	180 87	
April 30	T. E. Sullivan, salary and expenses, April	96 25	
April 30	W. D. Sisson, salary and expenses, April	124 00	
April 30	E. W. Hunt, salary and expenses, April	309 73	
April 30	Frank Shebley, salary and expenses, April	70 00	
April 30	Henry D. Curran, hauling and supplies	18 75	
April 30	D. L. Oliver, labor March and April	42 00	
May 31	W. H. Shebley, salary and expenses, May	178 52	
May 31	T. E. Sullivan, salary and expenses, May	134 77	
May 31	E. W. Hunt, salary and expenses, May	293 63	
May 31	Frank Shebley, salary and expenses, May	70 00	
May 31	L. J. Griffin, labor, January, February, March, and May	66 50	
May 31	A. P. Smiley, salary and expenses	86 50	
May 31	W. Montgomery, labor, April and May	51 00	
June 30	W. H. Shebley, salary and expenses, June	231 85	
June 30	T. E. Sullivan, salary and expenses, June	60 00	
June 30	E. W. Hunt, salary and expenses, June	148 36	
June 30	Frank Shebley, salary and expenses, June	70 00	
June 30	A. G. Fletcher, salary and expenses, June	82 60	
June 30	J. Eastman, labor, June	14 00	
June 30	W. P. Fuller & Co., supplies	10 85	
June 30	W. Montgomery, labor, June	14 00	
June 30	W. D. Sisson, hauling, May and June	74 25	
	Totals	$7,500 00	$7,500 00

APPROPRIATION FOR SUPPORT AND MAINTENANCE OF STATE HATCHERIES.

Warrants Drawn during Forty-seventh Fiscal Year, ending June 30, 1896.

1895.			
July 1	Amount appropriated		$7,500 00
Aug. 1	W. H. Shebley, salary and expenses, July	$179 58	
Aug. 1	F. A. Shebley, salary and expenses, July	70 00	
Aug. 1	E. W. Hunt, salary and expenses, July	169 45	
Aug. 1	A. G. Fletcher, salary and expenses, July	104 65	
Aug. 1	R. R. Hillman, salary and expenses, July	51 50	
Sept. 1	R. R. Hillman, salary and expenses, August	50 00	
Sept. 1	E. W. Hunt, salary and expenses, August	163 84	
Sept. 1	F. A. Shebley, salary and expenses, August	93 00	
Sept. 1	W. H. Shebley, salary and expenses, August	114 55	
Sept. 1	A. G. Fletcher, salary and expenses, August	84 10	
Sept. 1	J. H. Eastman, salary and expenses, August	31 00	
Sept. 1	Scott & Klink, rent of Klink's Lake	50 00	
Oct. 1	W. H. Shebley, salary and expenses, September	143 75	
Oct. 1	F. A. Shebley, salary and expenses, September	77 69	
Oct. 1	R. W. Requa, salary and expenses, September	132 65	
Oct. 1	E. W. Hunt, salary and expenses, September	114 00	
Oct. 1	J. H. Eastman, salary and expenses, September	30 00	
Oct. 1	L. J. Griffin, labor, Sisson	58 50	
Oct. 1	J. H. Sharpe, rent of land, Tahoe, July 1 to Sept. 1, 1895	8 35	
Oct. 1	J. H. Sharpe, rent of land, Tahoe, to September 1, 1896	50 00	
	Amount carried forward	$1,776 61	$7,500 00

SUPPORT AND MAINTENANCE OF STATE HATCHERIES—Continued.

1895.	Amount brought forward	$1,776 61	$7,500 00
Nov. 1	R. W. Requa, salary and expenses, October	105 50	
Nov. 1	F. A. Shebley, salary and expenses, October	85 60	
Nov. 1	J. H. Eastman, salary and expenses, October	30 00	
Nov. 1	W. D. Sisson, hauling and ice, July, Aug., and Sept.	138 50	
Nov. 1	L. J. Bruner, labor, July	40 00	
Nov. 1	Holbrook, Merrill & Stetson, supplies	13 75	
Nov. 1	W. P. Fuller & Co., supplies	36 65	
Dec. 1	R. W. Requa, salary and expenses, November	101 50	
Dec. 1	W. D. Sisson, hauling, October and November, and rent of lake to November 15, 1896	121 00	
Dec. 1	L. J. Griffin, labor	36 25	
Dec. 1	J. H. Eastman, salary and expenses, November	30 00	
Dec. 31	E. W. Hunt, salary and expenses, December	51 58	
Dec. 31	W. H. Shebley, salary and expenses, December	127 50	
Dec. 31	F. A. Shebley, salary and expenses, December	74 70	
Dec. 31	R. W. Requa, salary and expenses, December	102 50	
Dec. 31	J. H. Eastman, salary and expenses, December	30 00	
1896.			
Feb. 1	E. W. Hunt, salary and expenses, January	180 35	
Feb. 1	F. A. Shebley, salary and expenses, January	70 50	
Feb. 1	W. H. Shebley, salary and expenses, January	186 28	
Feb. 1	R. W. Requa, salary and expenses, January	100 50	
Feb. 1	J. H. Eastman, salary and expenses, January	30 50	
Feb. 1	J. Caire, supplies	80 70	
Feb. 1	W. D. Sisson, hauling, December and January	62 75	
Feb. 1	J. P. Babcock, bill of J. Annin, Jr., for Brown Trout eggs	135 00	
Mar. 1	J. P. Babcock, salary and expenses, February	169 70	
Mar. 1	W. H. Shebley, salary and expenses, February	258 62	
Mar. 1	F. A. Shebley, salary and expenses, February	70 50	
Mar. 1	R. W. Requa, salary and expenses, February	100 50	
Mar. 1	E. W. Hunt, salary and expenses, February	135 85	
Mar. 1	S. Rhodes, salary and expenses, February	38 00	
Mar. 1	J. H. Eastman, salary and expenses, February	13 00	
Mar. 1	L. J. Griffin, contract price paid for work on new lake	550 00	
April 1	J. P. Babcock, bill of hatchery supplies	98 71	
April 1	J. P. Babcock, salary and expenses, March	179 00	
April 1	W. H. Shebley, salary and expenses, March	132 35	
April 1	R. W. Requa, salary and expenses, March	140 20	
April 1	E. W. Hunt, salary and expenses, March	224 14	
April 1	F. A. Shebley, salary and expenses, March	79 50	
April 1	E. B. Nelson, salary and expenses, March	35 50	
May 1	W. H. Shebley, salary and expenses, April	184 62	
May 1	R. W. Requa, salary and expenses, April	111 40	
May 1	W. D. Sisson, salary and expenses, April	115 25	
May 1	J. H. Eastman, salary and expenses, April	30 00	
May 1	E. W. Hunt, salary and expenses, April	323 08	
May 1	F. A. Shebley, salary and expenses, April	70 00	
May 1	E. B. Nelson, salary and expenses, April	60 00	
June 1	W. H. Shebley, salary and expenses, May	103 76	
June 1	E. W. Hunt, salary and expenses, May	353 40	
June 1	R. W. Requa, salary and expenses, May	81 00	
June 1	F. A. Shebley, salary and expenses, May	70 00	
June 1	J. H. Eastman, salary and expenses, May	24 00	
	Totals	$7,500 00	$7,500 00

FISH COMMISSION FUND.

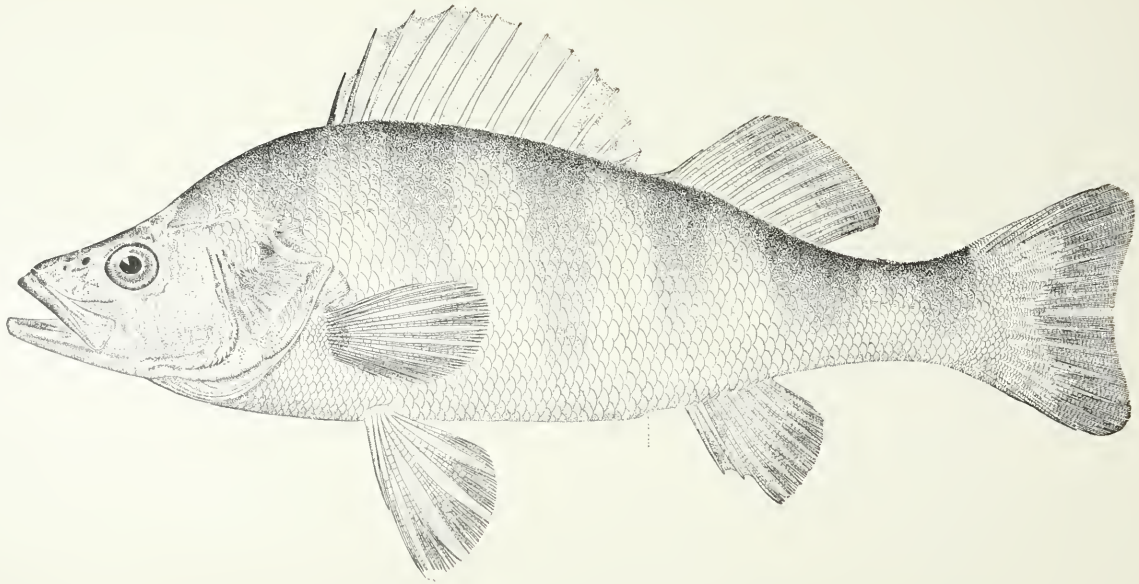
Warrants Drawn during the Forty-sixth Fiscal Year, ending June 30, 1895.

1894.				
July	1	Balance on hand		$1,379 24
July	1	Receipts into fund		5,225 92
July	1	J. P. Babcock, salary and expenses, June	$177 85	
July	1	W. R. McFarland, salary and expenses, June	148 55	
July	1	A. G. Fletcher, salary and expenses, June	84 54	
July	1	Morrill Bros., 70,000 eyed trout ova	122 50	
July	1	A. W. Wilson, salary and expenses, June	110 95	
July	1	Mary C. Rowson, launch "Hustler," June	30 00	
July	10	J. A. Richardson, salary and expenses, April	122 75	
July	10	J. C. Irvine, patrolman's badges	16 25	
July	10	S. Crocker, salary and expenses, May	103 50	
July	10	C. F. Selvage, salary and expenses, June	120 25	
July	10	J. Caire, supplies, Sisson	7 75	
July	10	E. W. Hunt, salary and expenses, June	236 91	
July	10	F. C. Boyce, salary and expenses, June	70 00	
July	10	W. H. Shebley, salary and expenses, June	125 13	
July	10	T. E. Sullivan, salary and expenses, June	96 70	
July	10	Frank Shebley, salary and expenses, June	59 00	
July	10	W. D. Sisson, hauling, etc., June	27 50	
July	15	H. L. Macneil, expenses, April	29 40	
July	15	H. L. Macneil, expenses, June	28 50	
Aug.	1	J. D. Redding, expenses	227 05	
Aug.	1	W. C. Murdoch, expenses	113 10	
Aug.	1	Neville & Co., flag for Sisson	6 00	
Sept.	1	J. D. Hollingsworth, expenses	22 50	
Sept.	1	Sisson Mill and Lumber Co., lumber and supplies	52 00	
Sept.	1	Henry Rowson, launch "Hustler," August	70 00	
Oct.	2	S. Kaufman, stenographic and typewriter services	183 00	
Oct.	2	C. H. Rice, excess amount paid State in case of D. Johns, Collinsville	8 10	
Oct.	2	Mary C. Rowson, launch "Hustler," September	300 00	
Oct.	2	Union Ice Co., ice	20 30	
Oct.	2	M. C. Allen, services revising report	50 00	
Oct.	2	F. P. Deering, salary, February	100 00	
Oct.	2	F. P. Deering, salary, March	100 00	
Oct.	2	F. P. Deering, salary, April	100 00	
Oct.	2	F. P. Deering, salary, May	100 00	
Oct.	2	F. P. Deering, salary, June	100 00	
Oct.	20	H. L. Macneil, expenses	45 00	
Oct.	20	J. D. Redding, expenses	88 25	
Nov.	1	Overland Monthly Pub. Co., electrotypes and printing	100 14	
Nov.	1	J. C. Irvine, badges and stamp	16 75	
Dec.	31	E. D. Stewart, Kinney's ice bill, July, 1893	4 50	
Dec.	31	H. S. Crocker Co., stationery and printing	12 55	
1895.				
Feb.	1	Mary C. Rowson, launch "Hustler," January	50 00	
Feb.	1	J. H. Davis, salary and expenses, January	68 50	
Mar.	1	J. H. Davis, salary and expenses, February	136 25	
Mar.	31	J. H. Davis, salary and expenses, March	166 25	
Mar.	31	J. P. Babcock, expense securing evidence	7 50	
Mar.	31	Mary C. Rowson, launch "Hustler," March	30 00	
Mar.	31	H. C. Chipman, painting license tags	117 00	
April	2	J. C. Irvine, badges and stamps	29 45	
April	30	J. H. Lowe, labor, January and April	15 50	
April	30	H. S. Crocker Co., stationery and supplies	24 75	
April	30	Mary C. Rowson, launch "Hustler," April	290 00	
April	30	E. T. Allen Co., supplies	14 50	
May	31	H. F. Emeric, expenses	79 00	
May	31	W. C. Murdoch, expenses	79 00	
May	31	Mary C. Rowson, launch "Hustler," May	70 00	
May	31	J. C. Irvine, badges	22 75	
June	30	Balance on hand	1,867 44	
		Totals	$6,605 16	$6,605 16

FISH COMMISSION FUND.

Warrants Drawn during Forty-seventh Fiscal Year, ending June 30, 1896.

1895.				
July	1	Balance on hand		$1,867 44
July	1	Receipts into fund		5,671 90
July	1	E. W. Hunt, salary and expenses, July	$75 54	
July	1	J. Caire, supplies	44 00	
Aug.	1	H. F. Emeric, expenses	93 00	
Aug.	1	W. C. Murdoch, expenses	95 80	
Aug.	1	Southern Pacific R. R., transportation of U. S. car No. 3 from Ogden	188 53	
Sept.	1	H. F. Emeric, expenses	30 60	
Sept.	1	R. H. Bierce, contract, Battle Creek Hatchery	300 00	
Oct.	1	W. H. Shebley, salary and expenses, September	194 17	
Oct.	1	R. H. Bierce, contract, Battle Creek Hatchery	400 00	
Oct.	1	J. P. Babcock, supplies, Battle Creek	44 70	
Oct.	1	R. H. Bierce, contract and supplies	569 40	
Nov.	1	H. F. Emeric, expenses	20 30	
Nov.	1	W. C. Murdoch, expenses	17 30	
Nov.	1	J. Caire, supplies	157 30	
Nov.	1	Neville & Co., supplies	88 73	
Nov.	1	E. W. Hunt, labor and supplies, October	455 40	
Nov.	1	W. H. Shebley, salary and expenses, October	140 28	
Nov.	1	E. W. Hunt, salary and expenses, October	148 95	
Nov.	1	E. W. Hunt, operating expenses, Battle Creek	290 03	
Dec.	1	E. W. Hunt, salary and expenses, November	121 80	
Dec.	1	E. W. Hunt, labor, material, etc.	536 85	
Dec.	1	W. H. Shebley, salary and expenses, November	128 65	
Dec.	1	F. A. Shebley, salary and expenses, November	116 57	
Dec.	1	L. A. Sheldon, lumber	138 02	
1896.				
Jan.	1	J. M. Morrison, expenses	1 45	
Jan.	1	E. W. Hunt, salary and expenses, December	197 34	
May	1	J. H. Davis, salary and expenses, April	160 70	
May	1	W. J. Davis, salary and expenses, April	158 00	
May	1	Mary C. Rowson, Launch "Hustler," April	290 00	
May	1	H. C. Chipman, painting license tags	108 00	
May	1	H. F. Emeric, expenses	37 70	
May	1	W. C. Murdoch, expenses	35 70	
June	1	W. H. Shebley, expenses, May	24 33	
June	1	E. B. Nelson, salary and expenses, May	60 00	
June	1	M. L. Cross, salary and expenses, May	57 95	
June	1	A. G. Fletcher, salary and expenses, May	92 65	
June	1	J. H. Davis, salary and expenses, May	166 75	
June	1	W. J. Davis, salary and expenses, May	88 40	
June	30	Balance on hand	1,664 45	
		Totals	$7,539 34	$7,539 34



YELLOW PERCH.—*Perca flavescens.*

STATEMENT OF LICENSES ISSUED.

AMOUNT RECEIVED FROM LICENSES FOR THE YEAR ENDING APRIL 1, 1895.

Class.	Received of Controller.	Value of Each.	On Hand April 1, 1895.	Sold During the Year.	Total Value of Licenses Sold.	Commissions Paid for Collecting.	Net Amount Paid the State.
A	800	$5 00	156	644	$3,220 00	$3 00	$3,217 00
B	50	7 50	17	33	247 50		247 50
C	50	10 00	24	26	260 00		260 00
D	50	12 50	29	21	262 50		262 50
E	25		19	6	82 50		82 50
Totals	975		245	730	$4,072 50	$3 00	$4,069 50

AMOUNT RECEIVED FROM STURGEON LICENSES FOR THE YEAR ENDING SEPTEMBER 1, 1895.

Received of Controller.	Value of Each.	Number Sold.	Amount Collected.	Net Amount Paid the State.
100	$10 00	74	$740 00	$740 00

AMOUNT RECEIVED FROM LICENSES FOR THE YEAR ENDING APRIL 1, 1896.

Class.	Received of Controller.	Value of Each.	On Hand April 1, 1896.	Sold During the Year.	Total Value of Licenses Sold.	Commissions Paid for Collecting.	Net Amount Paid the State.
A	800	$5 00	137	663	$3,315 00		$3,315 00
B	50	7 50	42	8	60 00		60 00
C	50	10 00	30	20	200 00		200 00
D	50	12 50	24	26	325 00		325 00
E	25		22	3	47 50		47 50
Totals	975		255	720	$3,947 50		$3,947 50

FISH DISTRIBUTION.

DISTRIBUTION OF THE SUMMER AND FALL TAKE OF SALMON (*Onchorhynchus chouicha*)—1894.

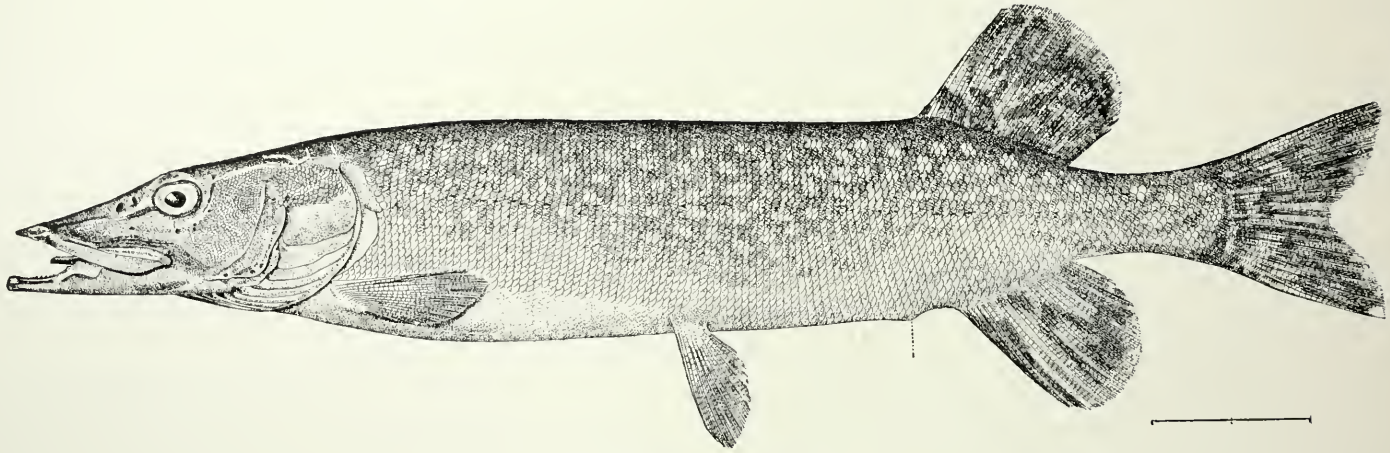
Date.	Distribution.	Number of Fish.
1894.		
Oct. 9	Sullaway Creek	180,000
1895.		
Jan. 3	Cold Creek	120,000
Jan. 4	Wagon Valley Creek	100,000
Jan. 5	Sullaway Creek	200,000
Jan. 6	Cold Creek	100,000
Jan. 7	Big Spring Creek	100,000
Jan. 7	Sullaway Creek	100,000
Jan. 8	Cold Creek	100,000
Jan. 9	Cold Creek	100,000
Jan. 9	Sullaway Creek	100,000
Jan. 10	Wagon Valley Creek	100,000
Jan. 10	Sullaway Creek	100,000
Jan. 10	School-House Spring Creek	100,000
Jan. 15	Cold Creek	100,000
Jan. 16	Sullaway Creek	100,000
Jan. 17	Big Spring Creek	100,000
Jan. 18	Big Spring Creek	200,000
Jan. 19	Big Spring Creek	100,000
Jan. 25	Cold Creek	100,000
Feb. 17	Big Spring Creek	100,000
Mar. 12	Sacramento River	200,000
Mar. 13	Cold Creek	100,000
Mar. 13	Sullaway Creek	100,000
Mar. 14	Sacramento River	250,000
Mar. 14	Big Spring Creek	200,000
May 5	Castle Creek	180,000
May 20	Sacramento River	105,000
	Total	3,435,000

DISTRIBUTION OF THE SUMMER TAKE OF SALMON (*Onchorhynchus chouicha*) FROM THE UNITED STATES STATION AT BAIRD—1895. (HATCHED AT SISSON HATCHERY.)

Date.	Distribution.	Number of Fish.
1894.		
Nov. 14	Sullaway Creek	200,000
Nov. 14	Big Spring Creek	200,000
Nov. 14	Sullaway Creek, near Klink's	175,000
Nov. 14	Cold Creek	200,000
Nov. 14	School-House Creek	150,000
Nov. 15	Cold Creek, below the bridge	150,000
Nov. 15	Sullaway Creek, at the mill	200,000
Nov. 15	Big Spring Creek	175,000
Nov. 15	Sullaway Creek, at Klink's	200,000
Nov. 20	Sullaway Creek, at junction	250,000
Nov. 20	School-House Spring Creek	150,000
Nov. 20	Big Spring Creek, in Klink's meadow	200,000
Nov. 20	Wagon Valley Creek	200,000
Nov. 20	Sacramento River	250,000
Nov. 20	Junction of School-House and Sullaway creeks	200,000
Dec. 2	Sullaway Creek	175,000
Dec. 2	Wagon Valley Creek	200,000
Dec. 2	Cold Creek	200,000
Dec. 2	Sullaway Creek, at Bridge	200,000
Dec. 2	Big Spring Creek	200,000
Dec. 7	Sacramento River	250,000
Dec. 7	Castle Creek	150,000
Dec. 7	Sullaway Creek, near Klink's	200,000
Dec. 7	Big Spring Creek, in Klink's meadow	200,000
Dec. 7	School-House Creek	100,000
Dec. 7	Wagon Valley Creek	100,000
Dec. 10	Lake Emeric	463,600
	Total	5,538,600

DISTRIBUTION OF THE FALL TAKE OF SALMON (*Onchorhynchus chouicha*) FROM THE BATTLE CREEK STATION—1895. (HATCHED AT SISSON.)

Date.	Distribution.	Number of Fry.
1895.		
Dec. 27	Sullaway Creek, near Klink's	150,000
Dec. 27	Wagon Valley Creek	150,000
Dec. 31	Big Spring Creek	150,000
Dec. 31	Sullaway Creek, at the ford	150,000
1896.		
Jan. 2	School-House Spring Creek	150,000
Jan. 2	Sullaway Creek, at the bridge	200,000
Jan. 2	Wagon Valley Creek	100,000
Jan. 4	Big Spring Creek, near Klink's	150,000
Jan. 4	Sullaway Creek, at the bridge	200,000
Jan. 6	Wagon Valley Creek	200,000
Jan. 6	School-House Spring Creek	150,000
Jan. 6	Big Spring Creek	150,000
Jan. 7	Junction of Cold and Sullaway creeks	200,000
Jan. 7	Wagon Valley Creek	150,000
Jan. 9	Big Spring Creek	150,000
Jan. 9	Sullaway Creek	150,000
Jan. 9	School-House Spring Creek	150,000
Jan. 10	School-House Spring Creek	200,000
Jan. 10	Sullaway Creek, at the mill	150,000
Jan. 10	Wagon Valley Creek	150,000
Jan. 11	School-House Spring Creek	150,000
Jan. 11	Big Spring Creek	150,000
Jan. 13	Sullaway Creek, at the mill	150,000
Jan. 13	Sacramento River	200,000
Jan. 14	School-House Spring Creek	150,000
Jan. 14	Sullaway Creek, near Klink's	150,000
Jan. 14	Wagon Valley Creek	150,000
Jan. 15	Sullaway Creek, at the bridge	150,000
Jan. 16	Sacramento River	200,000
Jan. 16	Castle Creek	150,000
Jan. 17	Wagon Valley Creek	150,000
Jan. 17	School-House Spring Creek	150,000
Jan. 27	Lake Emeric, Sisson Hatchery	1,500,000
Feb. 12	Lake Emeric, Sisson Hatchery	2,000,000
Feb. 15	Sullaway Creek	144,580
	Total	8,744,580



PICKEREL.—*Lucius lucius.*

DISTRIBUTION OF EASTERN BROOK TROUT (*Salvelinus fontinalis*) FROM SISSON HATCHERY—1895.

Date.	Distribution.	Number of Fry.
1895.		
April 16	Robertson Creek, Mendocino County	15,000
April 16	Cold Creek, Mendocino County	5,000
April 23	Feather River, Yuba County	20,000
April 24	East Fork Rancherie Creek, Tulare County	5,000
April 24	Middle Fork Rancherie Creek, Tulare County	5,000
April 24	Tule River, Tulare County	10,000
April 24	White River, Tulare County	5,000
April 24	Poso Creek, Kern County	5,000
April 28	Green Valley Creek, Sonoma County	10,000
May 8	Santa Paula Creek, Ventura County	10,000
May 8	Sespe Creek, Ventura County	10,000
May 9	Pauma Creek and tributaries, San Diego County	10,000
June 3	Tripp's Creek, San Mateo County	5,000
June 5	Merced River, Yosemite Valley	7,500
June 5	Merced River, Little Yosemite Valley	5,500
June 5	Mirror Lake, Yosemite Valley	2,500
June 5	Tanaya Creek, Yosemite Valley	2,000
June 5	Alder Creek, Yosemite National Park	500
June 5	Bishop Creek, Yosemite National Park	500
June 5	Indian Creek, Yosemite National Park	500
June 5	Grouse Creek, Yosemite National Park	1,000
June 26	Shovel Creek, Siskiyou County	5,000
June 30	Webber Lake, Sierra County	10,000
June 30	Head of Prosser Creek, Nevada County	2,500
June 30	Squaw Creek, Nevada County	5,000
June 30	Bear Creek, Nevada County	2,500
June 30	Lake Independence, Nevada County	10,000
Aug. 19	McCloud River, Siskiyou County	20,000
Aug. 20	Sacramento River, near Soda Springs, Shasta County	5,000
Aug. 25	Castle Lake, Shasta County	2,000
	Total	197,000

DISTRIBUTION OF RAINBOW TROUT (*Salmo irideus*) FROM SISSON HATCHERY—SEASON OF 1895.

Date.	Distribution.	Number of Fry.
1895.		
June 20	Sacramento River, near Shasta Soda Springs	20,000
June 23	Wild Horse Valley Lake, Solano County	10,000
June 25	Palomares Creek, Alameda County	5,000
June 29	South Fork of Yuba River	5,000
July 6	Coyote Creek, Santa Clara County	10,000
July 6	Stevens Creek, Santa Clara County	10,000
July 6	Permanenta Creek, Santa Clara County	5,000
July 11	Forsyth Creek, Mendocino County	10,000
July 11	Paper Mill Creek, Marin County	5,000
July 18	San Joaquin River, above Pollasky	10,000
July 18	Stephenson Creek, Fresno County	10,000
July 18	Coyote Creek, Fresno County	5,000
	Total	105,000

RAINBOW TROUT (*Salmo irideus*) HATCHED AT SHOVEL CREEK SPAWNING STATION—SEASON OF 1895.

May 20	Shovel Creek, Siskiyou County	10,500

RAINBOW TROUT (*Salmo irideus*) HATCHED AT SHOVEL CREEK SPAWNING STATION—SEASON OF 1896.

Date.	Distribution.	Number of Fry.
1896.		
June 1	Shovel Creek, Siskiyou County	25,000

DISTRIBUTION OF CUT-THROAT TROUT (*Salmo mykiss*) FROM SISSON HATCHERY—SEASON OF 1895.

Date.	Distribution.	Number of Fry.
1895.		
July 16	Butler Creek, Siskiyou County	25,000
July 19	Carmel River, Monterey County	50,000
July 22	Sullaway Creek, Siskiyou County	20,000
July 22	Cold Creek, Siskiyou County	10,000
July 22	Sacramento River, near Stevens Bridge	20,000
July 23	Sullaway Creek	10,000
July 23	Cold Creek	30,000
July 23	Sacramento River, near Stevens Bridge	10,000
July 24	Wagon Valley Creek, Siskiyou County	10,000
July 24	Big Spring Creek, Siskiyou County	20,000
July 24	School-House Creek, Siskiyou County	20,000
July 25	Sullaway Creek, Siskiyou County	20,000
July 25	Cold Creek, Siskiyou County	20,000
July 25	Sacramento River, near Stevens Bridge	10,000
July 26	Big Spring Creek, Siskiyou County	10,000
July 26	School-House Creek, Siskiyou County	20,000
July 26	Wagon Valley Creek, Siskiyou County	20,000
July 26	Warm Spring Creek, Sonoma County	25,000
July 26	Clear Lake, Lake County	25,000
July 26	Robertson Creek, Mendocino County	10,000
July 26	Walker Creek, Mendocino County	15,000
July 30	Santa Ana River, San Bernardino County	6,000
July 30	Mill Creek, San Bernardino County	4,000
July 30	Plunge Creek, San Bernardino County	5,000
July 30	City Creek, San Bernardino County	5,000
July 30	Deep Creek, San Bernardino County	4,000
July 30	Little Bear Creek, San Bernardino County	6,000
July 30	West Twin Creek, San Bernardino County	3,000
July 30	Cable Creek, San Bernardino County	2,000
July 30	Devil Cañon Creek, San Bernardino County	5,000
July 30	San Antonio Creek, San Bernardino County	10,000
July 30	North Fork Kaweah River, Tulare County	25,000
July 30	Kaweah River, near Red Hill	25,000
Aug. 4	Grindstone Creek, Colusa County	20,000
Aug. 4	Coal Creek, Colusa County	5,000
Aug. 7	Milliken Creek, above falls, Napa County	25,000
Aug. 10	Soledad Creek, Ventura County	12,000
Aug. 10	Santa Clara River, Ventura County	13,000
Aug. 10	Crystal Spring Lake, Los Angeles County	25,000
Aug. 10	Arrastra Creek, Los Angeles County	10,000
Aug. 10	Gleason Creek, Los Angeles County	5,000
Aug. 10	San Dimas Creek, Los Angeles County	5,000
Aug. 10	Sycamore Creek, Los Angeles County	5,000
Aug. 10	Kern River and tributaries	50,000
Aug. 16	Santa Ysabel Creek, San Diego County	25,000
Aug. 16	Chaparral Creek, Fresno County	5,000
Aug. 16	Bear Creek, Fresno County	5,000
Aug. 16	Big Creek, Fresno County	5,000
Aug. 16	Dinkey Creek, Fresno County	5,000
Aug. 16	Rush Creek, Fresno County	5,000
Aug. 16	Kings River, above Centerville, Kern County	10,000
Aug. 16	San Joaquin River, east of Landale's Mill, Fresno County	5,000
Aug. 20	Upper Blue Lake, Lake County	20,000
Aug. 20	Laurel Dell Lake, Lake County	20,000
Aug. 20	Middle Blue Lake, Lake County	10,000

DISTRIBUTION OF CUT-THROAT TROUT FROM SISSON HATCHERY—Continued.

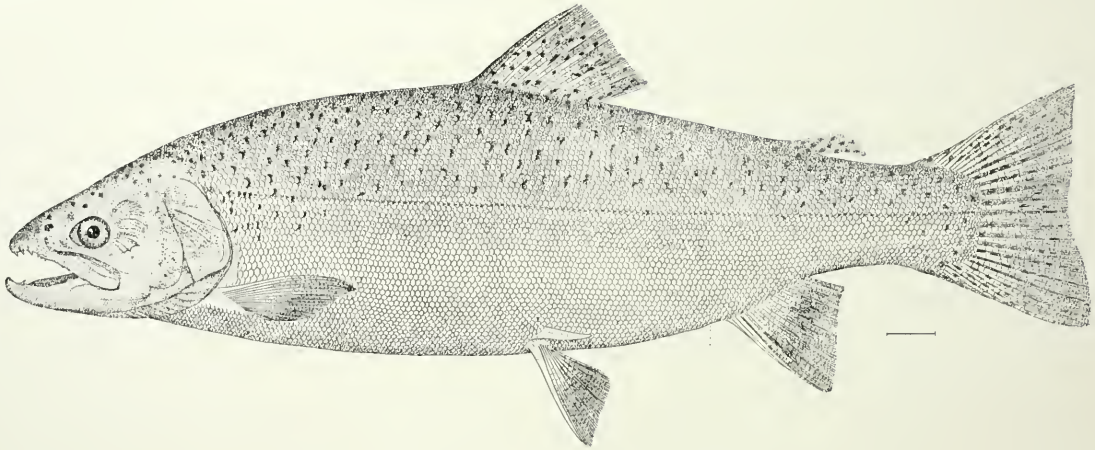
Date.	Distribution.	Number of Fry.
1895.		
Aug. 20	Coyote Creek, Santa Clara County	7,500
Aug. 20	Uvas Creek, Santa Clara County	10,000
Aug. 20	Llagas Creek, Santa Clara County	5,000
Aug. 20	Los Gatos Creek, Santa Clara County	5,000
Aug. 20	San Ysabel Creek, Santa Clara County	7,500
Aug. 20	Guadalupe Creek, Santa Clara County	7,500
Aug. 20	Saratoga Creek, Santa Clara County	7,500
Aug. 20	Adobe Creek, Santa Clara County	5,000
Aug. 21	Butte Creek, Siskiyou County	50,000
Aug. 23	East Austin Creek, Sonoma County	25,000
Aug. 23	Antelope Creek, Tehama County	25,000
Aug. 24	Garcia River, Mendocino County	25,000
Aug. 28	Upper Blue Lake, Lake County	10,000
Aug. 28	Middle Blue Lake, Lake County	10,000
Aug. 28	Laurel Dell Lake, Lake County	5,000
Aug. 28	Coyote Creek, Santa Clara County	7,500
Aug. 28	Uvas Creek, Santa Clara County	7,500
Aug. 28	Little Sulphur Creek, Sonoma County	25,000
Aug. 28	Llagas Creek, Santa Clara County	5,000
Aug. 28	San Ysabel Creek, Santa Clara County	7,500
Aug. 28	Los Gatos Creek, Santa Clara County	2,500
Aug. 28	Stevens Creek, Santa Clara County	7,500
Aug. 28	Permanenta Creek, Santa Clara County	7,500
Sept. 4	Paper Mill Creek, Marin County	25,000
Sept. 4	Austin Creek, Cazadero, Sonoma County	25,000
Sept. 14	Laurel Dell Lake, Lake County	20,000
Sept. 14	Middle Blue Lake, Lake County	10,000
Sept. 14	Upper Blue Lake, Lake County	20,000
Sept. 17	Echo Lake, Shasta County	25,000
Sept. 17	Castle Lake, Shasta County	25,000
Sept. 17	Sullaway Creek, at Junction with Cold Creek	55,000
Sept. 17	Wagon Valley Creek	80,000
Sept. 17	Big Spring Creek, junction with Sullaway Creek	70,000
Sept. 17	Sacramento River, near Stevens Bridge	100,000
Sept. 18	School-House Creek	50,000
Sept. 18	Castle Creek, Shasta County	25,000
Sept. 18	Castle Lake, Shasta County	25,000
Sept. 18	Cold Creek, above the bridge	100,000
Sept. 18	Sullaway Creek, below the mouth of Big Spring Creek	100,000
Sept. 18	Sacramento River, near mouth of Castle Creek	50,000
Sept. 18	Sacramento River, eighteenth crossing	50,000
Sept. 18	Sullaway Creek, below the mouth of Cold Creek	50,000
	Total	1,970,000

DISTRIBUTION OF CUT-THROAT TROUT (*Salmo mykiss*) FROM SISSON HATCHERY—SEASON OF 1896.

Date.	Distribution.	Number of Fry.
1896.		
June 25	Butte Creek, Siskiyou County	40,000
July 16	Sacramento River, near Shasta Springs	20,000
July 26	Deep Creek, San Bernardino County	2,500
July 26	City Creek, San Bernardino County	2,500
July 26	Plunge Creek, San Bernardino County	2,500
July 26	Fish Creek, San Bernardino County	2,500
July 26	West Twin Creek, San Bernardino County	2,500
July 26	Little Bear Creek, San Bernardino County	2,500
July 26	Mill Creek, San Bernardino County	2,500
July 26	Santa Ana River, San Bernardino County	2,500
July 26	San Antonio Creek, San Bernardino County	2,500
July 26	Deer Creek, San Bernardino County	2,500
July 26	Santa Ana River, above falls	15,000
July 26	Yucaipe Creek, San Bernardino County	10,000
July 26	Kern River, Kern County	25,000
July 29	McCloud River, Siskiyou County	50,000
Aug. 1	Carmel River, Monterey County	50,000

DISTRIBUTION OF CUT-THROAT TROUT FROM SISSON HATCHERY—Continued.

Date, 1896.	Distribution.	Number of Fry.
Aug. 1	Sacramento River, near Shasta Springs	20,000
Aug. 6	Stevens Creek, Santa Clara County	20,000
Aug. 6	Smith Creek, Santa Clara County	20,000
Aug. 6	Indian Creek, Santa Clara County	10,000
Aug. 6	Wild Horse Valley Lake, Solano County	25,000
Aug. 6	Sacramento River, near Shasta Springs	10,000
Aug. 9	Gaddis Creek, El Dorado County	8,300
Aug. 9	Silver Creek, El Dorado County	17,000
Aug. 9	Silver Creek Lake, El Dorado County	8,000
Aug. 9	Water Gulch Creek, El Dorado County	2,000
Aug. 9	Slab Creek, El Dorado County	14,700
Aug. 9	Alpine Creek, El Dorado County	25,000
Aug. 12	Alameda Creek, above confluence with Calaveras Creek	25,000
Aug. 12	Gabilan River, Monterey County	25,000
Aug. 12	Carmel River, Monterey County	25,000
Aug. 16	Duncan's Lake, Los Angeles County	25,000
Aug. 16	Penasquit Creek, San Diego County	5,000
Aug. 16	Boulder Creek, San Diego County	22,500
Aug. 16	Guatay Creek, San Diego County	7,500
Sept. 5	Battle Creek, Tehama County	25,000
Sept. 5	Big Creek, Santa Cruz County	25,000
Sept 8	Upper Blue Lake, Lake County	35,000
Sept. 8	Middle Blue Lake, Lake County	30,000
Sept. 8	North Fork Kaweah River, Tulare County	25,000
Sept. 8	Redwood Creek, Tulare County	25,000
Sept. 13	Middle Blue Lake, Lake County	30,000
Sept. 13	Upper Blue Lake, Lake County	30,000
Sept. 15	Yuba River, Placer County	50,000
Sept. 16	McCloud River, Siskiyou County	50,000
Sept. 18	Mountain Mill Creek, Napa County	16,500
Sept. 18	Wright Cañon Creek, Napa County	8,500
Sept. 18	Bear Creek, Napa County	25,000
Sept. 18	Bear Creek, above bridge, Napa County	15,000
Sept. 18	Oak Knoll Creek, Napa County	10,000
Sept. 19	Middle Blue Lake, Lake County	50,000
Sept. 19	Upper Blue Lake, Lake County	50,000
Sept. 19	Antelope Creek, Siskiyou County	25,000
Sept. 21	Branch of Boulder Creek, Santa Cruz County	20,000
Sept. 21	Branch of Bear Creek, Santa Cruz County	10,000
Sept. 21	Kings Creek, Santa Cruz County	20,000
Sept. 24	Hellman Creek, Mendocino County	18,000
Sept. 24	Dry Creek, Sonoma County	27,000
Sept. 24	Trout Creek, Mendocino County	27,000
Sept. 24	Bucknell Creek, Mendocino County	18,000
Sept. 26	Alameda Creek, Alameda County	20,000
Sept. 26	Lake Chabot, Alameda County	5,000
Sept. 26	Uvas Creek, Santa Clara County	10,000
Sept. 26	Llagas Creek, Santa Clara County	5,000
Sept. 26	Saratoga Creek, Santa Clara County	5,000
Sept. 26	Los Gatos Creek, Santa Clara County	5,000
Sept. 26	Calaveras Creek, Santa Clara County	5,000
Sept. 26	Los Animas Creek, Santa Clara County	5,000
Sept. 26	Packwood Creek, Santa Clara County	5,000
Sept. 26	Coyote Creek, Santa Clara County	5,000
Sept. 26	Almaden Creek, Santa Clara County	5,000
Sept. 29	Sisquoc River, Santa Barbara County	10,000
Sept. 29	Santa Ynez River, Santa Barbara County	40,000
Oct. 3	Balls Creek, Siskiyou County	10,000
Oct. 6	South Fork Eel River, Mendocino County	50,000
Oct. 6	Paper Mill Creek, Marin County	25,000
Oct. 6	Austin Creek, Sonoma County	25,000
Oct. 11	Graham Creek, Sonoma County	50,000
Oct. 11	Stow Lake, Golden Gate Park	20,000
Oct. 13	School-House Spring Creek, Siskiyou County	11,650
Oct. 14	McCloud River, near Sisson Camp	50,000
Oct. 15	Butte Creek, Siskiyou County	25,000
Oct. 16	Sullaway Creek, Siskiyou County	25,000
Oct. 16	Castle Creek, Siskiyou County	25,000
Oct. 16	Big Spring Creek, Siskiyou County	30,000
Oct. 16	School-House Spring Creek, Siskiyou County	30,000
Oct. 16	Junction of Sullaway and Cold creeks	25,000
	Total	1,741,650



STEELHEAD TROUT.—*Salmo gairdneri.*

DISTRIBUTION OF MACKINAW TROUT (*Salvelinus namycush*) FROM SISSON HATCHERY—SEASON OF 1895.

Date.	Distribution.	Number of	
		Fry.	Yearlings.
May 19	Lake Tahoe, near Tahoe City	35,000	
May 25	Lake Tahoe, near Tallac	30,000	
	Total	65,000	

SEASON OF 1896.

July 17	Lake Tahoe, near Tallac		150
July 17	Lake Tahoe, near Tahoe City		150
	Total		300

DISTRIBUTION OF LOCH LEVEN TROUT (*Salmo trutta levenensis*) FROM SISSON HATCHERY—SEASON OF 1895.

Date.	Distribution.	Number of	
		Yearlings.	Adults.
June 30	Webber Lake	314	

SEASON OF 1896.

July 10	Webber Lake		997
July 14	Donner Lake		50
July 17	Lake Tahoe, near Tallac		25
July 17	Lake Tahoe, near Tahoe City		25
July 23	Webber Lake		600
	Total		1,697

DISTRIBUTION OF DOLLY VARDEN TROUT (*Salvelinus malma*) FROM SISSON HATCHERY—SEASON OF 1895.

Date.	Distribution.	Number of Fry.
May 19	Squaw Creek at confluence with Truckee River	5,000

SEASON OF 1896.

Oct. 8	Sacramento River, near Shasta Soda Springs	2,000

DISTRIBUTION OF LANDLOCKED SALMON (*Salmo salar sebago*) FROM SISSON HATCHERY—SEASON OF 1896.

Date.	Distribution.	Number of Yearlings.
July 14	Webber Lake	250

DISTRIBUTION OF GERMAN BROWN TROUT (*Salmo fario*) FROM SISSON HATCHERY—SEASON OF 1896.

Date, 1896.	Distribution.	Number of Fry.
July 14	Webber Lake	25,000
July 17	Lake Tahoe, near Tallac	2,500
July 17	Lake Tahoe, near Tahoe City	2,500
July 18	Donner Lake	5,000
July 21	McCloud River	10,000
Sept. 5	Battle Creek, Tehama County	5,000
Sept. 5	Antelope Creek, Tehama County	5,000
Sept. 13	Blue Lake, Lake County	15,000
Sept. 18	Laurel Dell Lake, Lake County	10,000
Sept. 18	Castle Lake, Shasta County	10,000
Sept. 26	Echo Lake, Shasta County	5,000
Sept. 26	Sacramento River, near Castella	5,000
Sept. 21	Sacramento River, near Shasta Soda Springs	5,000
	Total	105,000

DISTRIBUTION OF CUT-THROAT TROUT (*Salmo mykiss*) FROM TAHOE HATCHERIES—SEASON OF 1895.

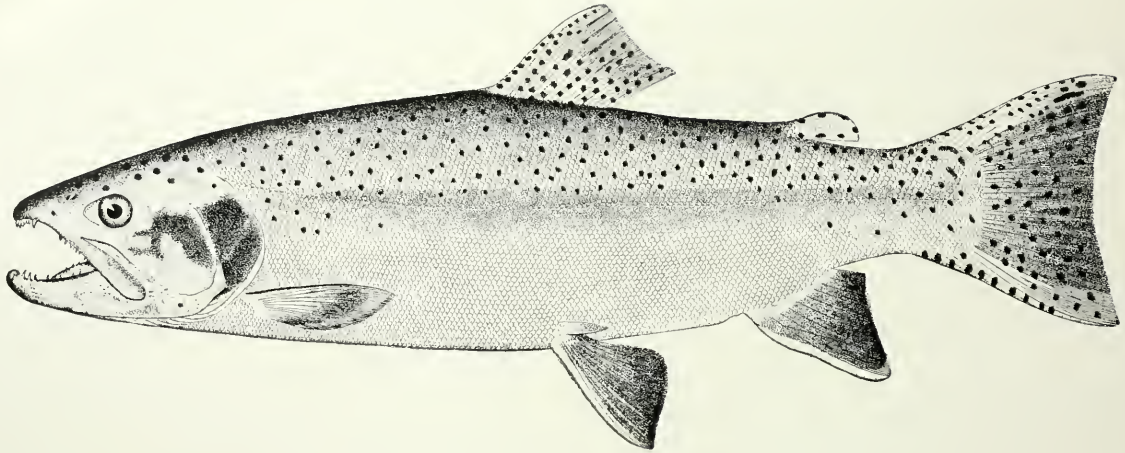
Date.	Distribution.	Number of Fry.
1895.	Tahoe City.	
July 13	Donner Lake, Nevada County	20,000
July 14	Ward Creek, tributary to Lake Tahoe	25,000
July 15	Ward Creek, tributary to Lake Tahoe	25,000
July 16	Donner Lake, Nevada County	51,000
July 16	Prosser Creek, Nevada County	10,000
July 16	Frog Lake, Nevada County	5,000
July 18	Donner Lake, Nevada County	39,000
July 18	Donner Creek, Nevada County	5,000
July 18	Prosser Creek, Nevada County	10,000
July 20	Martis Creek, Nevada County	10,000
July 20	Frog Lake, Nevada County	5,000
July 20	Cold Creek, Nevada County	5,000
July 23	Barton Creek, tributary to Lake Tahoe	40,000
July 26	Webber Lake, Sierra County	50,000
July 29	Webber Lake, Sierra County	50,000
Aug. 1	Independence Lake, Nevada County	70,000
Aug. 3	Independence Lake, Nevada County	30,000
Aug. 5	Grass Lake, El Dorado County	10,000
Aug. 5	Susie Lake, El Dorado County	10,000
Aug. 5	Heather Lake, El Dorado County	5,000
Aug. 9	North Fork of the American River, near Summit	50,000
Aug. 13	Five Lakes, Placer County	10,000
Aug. 13	Five Lakes Creek, Placer County	5,000
Aug. 13	Squaw Creek, Placer County	5,000
Aug. 13	Bear Creek, Placer County	5,000
Aug. 14	Quail Lake and Creek, Placer County	25,000
Aug. 16	Five Lakes, Placer County	10,000
Aug. 16	Five Lakes Creek, Placer County	5,000
Aug. 16	Squaw Creek, Placer County	5,000
Aug. 16	Bear Creek, Placer County	5,000
Aug. 17	Fulton Creek, Nevada County	15,000
Aug. 17	Grannan Creek, Nevada County	20,000
Aug. 17	Otis Creek, Nevada County	15,000
Aug. 18	Blackwood Creek, tributary to Lake Tahoe	40,000
Aug. 19	Squaw Creek, Placer County	40,000
Aug. 21	Truckee River, above Truckee	60,000
Aug. 22	Martis Creek, Nevada County	50,000
Aug. 22	Sagehen Creek, Nevada County	50,000
	Tallac.	
July 1	Fallen Leaf Lake, Tallac	120,000
July 2	Cascade Lake	130,000
July 3	Taylor Creek, tributary to Lake Tahoe	100,000
July 5	Lake Tahoe, near Cascade	50,000
	Total	1,290,000

DISTRIBUTION OF CUT-THROAT TROUT (*Salmo mykiss*) FROM TAHOE HATCHERIES—SEASON OF 1896.

Date.	Distribution.	Number of Fry.
1896.	TAHOE CITY.	
July 7	Donner Lake	50,000
July 9	Donner Lake	25,000
July 10	Independence Lake	70,000
July 18	Truckee River, above Von Schmidt's dam	50,000
July 20	Blackwood Creek, near Dairy	50,000
July 29	Webber Lake	50,000
July 31	Sagehen Creek, Sierra County	25,000
July 31	Webber Lake, inlet	25,000
Aug. 2	Webber Lake	50,000
Aug. 4	Webber Lake, inlet	50,000
Aug. 5	Squaw Creek, Placer County	33,000
Aug. 6	Bear Creek, Placer County	33,000
Aug. 8	Donner Lake	60,000
Aug. 9	Five Lakes Creek, Placer County	14,000
Aug. 9	Five Lakes Creek, Placer County	20,000
Aug. 9	Donner Lake	40,000
Aug. 11	McKinney's Creek, tributary to Lake Tahoe	25,000
Aug. 12	North Fork of American River	25,000
Aug. 12	American River, Blue Cañon	25,000
Aug. 14	South Fork of Yuba River	25,000
Aug. 14	North Fork of American River	25,000
Aug. 15	Blackwood Creek, tributary to Lake Tahoe	33,000
Aug. 17	Ward Creek, tributary to Lake Tahoe	40,000
Aug. 17	Blackwood Creek, tributary to Lake Tahoe	40,000
Aug. 17	Burton Creek, tributary to Lake Tahoe	40,000
Aug. 18	Quail Creek, tributary to Lake Tahoe	50,000
Aug. 19	Alder Creek, Nevada County	8,000
Aug. 19	Carpenter Creek, Nevada County	8,000
Aug. 19	Frog Lake, Nevada County	9,000
Aug. 21	Rubicon River	25,000
	TALLAC.	
July 27	Taylor Creek, tributary to Lake Tahoe	50,000
July 31	Fallen Leaf Lake	50,000
Aug. 6	Cascade Lake	50,000
Aug. 13	Little Truckee River	50,000
Aug. 17	Emerald Bay, Lake Tahoe	50,000
Aug. 19	Echo Lake	60,000
Aug. 6-21	Taylor Creek, tributary to Lake Tahoe	418,000
	Total	1,715,000

DISTRIBUTION OF CUT-THROAT TROUT (*Salmo mykiss*) FROM WAWONA HATCHERY—SEASON OF 1895.

Date.	Distribution.	Number of Fry.
1895.		
June 30	Raymond Creek, Mariposa County	5,000
June 30	Big Creek, Mariposa County	5,000
June 30	Meadow Creek, Mariposa County	5,000
June 30	South Fork Merced River, Yosemite National Park	5,000
June 30	Bruce Creek, Yosemite National Park	4,000
July 4	Big Creek, Yosemite National Park	3,500
July 4	South Fork Merced River, Yosemite National Park	6,500
July 5	Big Creek, Mariposa County	5,000
July 5	South Fork Merced River, Yosemite National Park	5,000
July 6	Big Creek, Yosemite National Park	6,000
July 6	South Fork Merced River, Yosemite National Park	4,000
July 7	Big Creek, Yosemite National Park	5,000
July 7	South Fork, Merced River, Yosemite National Park	5,000
July 8	Gibson Creek, Mariposa County	5,000
July 8	Big Creek, Mariposa County	7,500
July 8	South Fork Merced River, Yosemite National Park	2,500
July 8	Snow Creek, Mariposa County	1,300
July 8	Devil's Gulch Creek, Mariposa County	1,200
July 9	South Fork Merced River, Yosemite National Park	5,000
July 9	Big Creek, Yosemite National Park	5,000
July 10	Big Creek, Mariposa County	6,000
July 10	South Fork Merced River, Yosemite National Park	4,000
July 10	Stella Lake, Mariposa County	10,000
July 11	South Fork Merced River, Yosemite National Park	4,500
July 11	Big Creek, Yosemite National Park	7,500
July 12	Big Creek, Mariposa County	4,000
July 12	South Fork Merced River, Yosemite National Park	5,000
July 13	South Fork Merced River, Yosemite National Park	3,000
July 13	Big Creek, Yosemite National Park	6,000
July 14	Big Creek, Yosemite National Park	4,000
July 14	South Fork Merced River, Yosemite National Park	6,000
July 15	Merced River, Yosemite Valley	15,000
July 15	Yosemite Creek, Yosemite Valley	15,000
July 16	Big Creek, Yosemite National Park	5,000
July 16	South Fork Merced River, Yosemite National Park	5,000
July 17	Rush Creek, Yosemite National Park	7,500
July 17	Squirrel Creek, Yosemite National Park	7,500
July 18	Alder Creek, Yosemite National Park	10,000
July 18	Bishop Creek, Yosemite National Park	7,500
July 18	Indian Creek, Yosemite National Park	7,500
July 18	Bridal Veil Creek, above falls, Yosemite National Park	15,000
July 19	Big Creek, Yosemite National Park	5,000
July 19	South Fork Merced River, Yosemite National Park	5,000
July 21	Grouse Creek, Yosemite National Park	4,000
July 21	Merced River, in Lost Valley, Yosemite National Park	6,000
July 23	Grouse Lake, Yosemite National Park	5,000
July 23	Lake Johnson, Yosemite National Park	5,000
July 23	Buena Vista Lake, Yosemite National Park	5,000
July 25	East Fork Alder Creek, Yosemite National Park	3,000
July 25	West Fork Alder Creek, Yosemite National Park	3,000
July 26	Big Tree Creek, Mariposa Big Tree Grove	4,000
July 27	Big Tree Creek, above falls, Mariposa Big Tree Grove	1,500
	Total	293,000



RAINBOW TROUT, Adult Male.—*Salmo irideus.*

DISTRIBUTION OF RAINBOW (*Salmo irideus*) AND CUT-THROAT (*Salmo mykiss*) TROUT FROM WAWONA HATCHERY—SEASON OF 1896.

Date.	Distribution.	Number of Fry.	
		Rainbow.	Cut-throat.
1896.			
June 15	Stella Lake	100,000	
June 16	Coon Hollow Creek	10,000	
June 17	South Fork Merced River*		10,000
June 18	South Fork Merced River*		5,000
June 19	Big Creek*		5,000
June 20	South Fork Merced River, above bridge*		4,500
June 21	Big Creek*		2,000
June 22	Big Creek*		3,000
June 23	Junction South Fork Merced and Big Creek*		5,000
June 24	South Fork Merced River*		5,000
June 24	Junction South Fork Merced and Big Creek*		6,000
June 25	South Fork Merced River*		2,500
June 25	Big Creek*		2,500
June 26	South Fork Merced River*	2,500	
June 27	Big Creek, above ditch*		2,500
June 27	Bridal Veil Creek, above falls*	5,000	
June 28	Bridal Veil Creek, above falls*	5,000	5,000
June 28	South Fork Merced River*		4,500
June 29	Big Creek*		3,000
June 29	Hog Ranch Creek*†	2,000	1,000
June 30	Tuolumne River, in Little Hetchy*†	10,000	5,000
June 30	Babcock Creek*†	2,000	1,000
June 31	Slide River*†	3,000	
June 31	Rodgers River*†	5,000	3,000
July 3	South Fork Meadow Creek, Mariposa County	5,000	
July 3	North Fork Meadow Creek, Mariposa County		5,000
July 3	Wawona Creek, Mariposa County	5,000	
July 4	Alder Creek*	5,000	
July 4	Sawmill Creek, Mariposa County	5,000	
July 5	Big Creek*		2,500
July 5	South Fork Merced River*		2,500
July 6	South Fork Merced River*		2,500
July 6	Big Creek*		2,500
July 7	Big Creek*		2,500
July 7	South Fork Merced River*		2,500
July 8	Bishop Creek*	5,000	
July 8	Big Tree Creek, Mariposa Big Tree Grove	5,000	
July 8	Hite Creek, Mariposa County	5,000	
July 9	Bridal Veil Creek, Yosemite Valley	3,000	3,000
July 9	Yosemite Creek, Yosemite Valley	3,000	5,000
July 9	Cold Spring Creek, Yosemite Valley	3,000	
July 9	Tanaya Creek, Yosemite Valley	3,000	
July 10	South Fork Merced River*		2,500
July 10	Big Creek*		2,500
July 11	Sunrise Creek*	500	
July 12	Budd Creek, Tuolumne Meadows*	5,500	
July 12	Unicorn Creek, Tuolumne Meadows*		5,000
July 12	Dingley Creek, Tuolumne Meadows*	4,500	
July 12	Delaney Creek, Tuolumne Meadows*	4,500	
July 15	Swampy Creek*	1,000	
July 15	Chilnualna Creek, between falls*	2,000	2,000
July 16	Gibson Creek, Mariposa County	1,000	1,000
July 16	Laurel Creek, Mariposa County	1,500	1,500
July 16	Keho Creek, Madera County	1,000	1,000
July 16	Lewis Creek, Madera County	3,000	3,000
July 16	Upper North Fork San Joaquin River, Madera County	3,000	3,000
July 16	Lower North Fork San Joaquin River, Madera County	3,000	3,000
July 18	Illillouette River, above falls*	6,000	
July 18	Ellman Creek*†	6,000	
July 18	Merced Lake*†	6,000	6,000
July 20	Upper Stella Lake, for distribution	44,000	26,000
	Totals	284,000	160,000

* Yosemite National Park.
† Hard trip. Number given represents fish which left hatchery, loss being quite heavy.

DISTRIBUTION OF SMALL-MOUTH BLACK BASS (*Micropterus dolomieu*) DURING SEASON OF 1895.

Date.	Distribution.	Number of Fish.	
		Fry.	Yearlings.
1895.			
May 23	Alameda Water Co., Berkeley	1,000	
May 23	Mountain View Lake, Alameda County	1,000	
May 23	Lake Temescal, Alameda County	1,000	
May 23	Clear Lake, Lake County	1,500	
May 28	Sacramento River, above Redding	2,960	
May 28	Sacramento River, below Redding bridge	3,000	
June 1	Lake Tahoe, near Tahoe City	1,000	
June 1	Lake Tahoe, near Tallac	1,000	
June 9	Kings River, near Kingsburg, Fresno County	1,000	
June 9	Kern River, Kern County	250	
June 10	Temecula River, Riverside County	500	
June 10	Escondido Lake, San Diego County	500	
June 10	Russian River, Sonoma County	5,000	
June 13	Alameda Creek, below Sunol, Alameda County		28
June 13	Alameda Creek, above Niles, Alameda County		47
June 20	San Joaquin River, near Los Baños		200
June 23	American River, near Auburn, Placer County		200
June 29	Mendocino Lake, near Point Arena		150
June 30	Cache Creek, Capay Valley		150
July 6	San Joaquin River, near Betheney and Tracy		150
July 16	Lake of the Woods, Sierra County		40
	Totals	19,710	965

DISTRIBUTION OF LARGE-MOUTH BLACK BASS (*Micropterus salmoides*) FROM QUINCY, ILL., U. S. F. C. CAR No. 3—SEASON OF 1895.

Date.	Distribution.	Number of Fry.
1895.		
June 14	Lake Merced, San Francisco County	300
June 14	Crystal Springs Lake, San Mateo County	1,000
June 15	Sisson Hatchery Lake, Siskiyou County	1,200
June 16	Buena Vista Lake, Kern County	50
June 16	Gay Pond, San Diego County	50
June 16	Elsinore Lake, Riverside County	50
	Total	2,650

DISTRIBUTION OF SMALL-MOUTH BLACK BASS (*Micropterus dolomieu*) DURING SEASON OF 1896.

Date.	Distribution.	Number of—	
		Fingerlings.	Adults.
1896.			
July 27	Merritt Lake, Alameda County		30
Aug. 2	St. Mary's Park Lake, Tehama County	100	20
Aug. 2	Quin Lake, Trinity County	150	41
Aug. 8	American River, near Auburn	600	
Aug. 10	Eilet Lake, Santa Clara County	630	
	Totals	1,480	91

DISTRIBUTION OF FISH TAKEN FROM LAKE CUYAMACA DURING 1896.

1896.	To—	Large-Mouth Black Bass (*Micropterus salmoides*).		*Pickerel (*Lucius vermiculatus*).	*Yellow Perch (*Perca flavescens*).	Green Sunfish (*Lepomis cyanellus*).		*Shiners (*Notemegonus crysoleucas*).
		Adults.	Yearlings.			Adults.	Fingerlings.	
April 3	Trout's Lake, Los Angeles County					4		
April 5	Pond, Sisson Hatchery	4		2	4			
April 5	Sacramento River, Ball's Ferry	16			50			
April 5	Battle Creek	28	12	3				
April 16	Reymert Lake, Alhambra, Los Angeles County				10	10		10
April 18	Pond, Sisson Hatchery			4	44			6
April 18	Laguna de Santa Rosa, Sonoma County	6			10			
April 18	Clear Lake, near Lakeport	23	11	3				25
April 30	Grapevine Lake, Sacramento County	15	18		70			
April 30	Bushy Lake, Sacramento County	6	10		15			
April 30	Folsom Lake, Folsom	8	12		15			
May 10	Sweet Water Reservoir, San Diego County	5	100	7	120			100
May 14	Flood's Lake, near Escondido	16						25
May 14	Vail's Pond, Redondo Beach		8			5		
May 14	Pomeroy Lake, Burbank, Los Angeles County		9					
May 15	Tulare Lake, mouth Cross Creek	8			76	8	50	40
May 15	Hanford Lake, Tulare County	6		6				
May 15	Kaweah River, Tulare County, near Pumpkin Hollow	6			6	2		20
May 15	Tuolumne River, near Modesto	14						
May 16	Sacramento River, near Corning	7	175	2	30	5	15	25
May 16	Western Lake, Golden Gate Park						6	
May 16	Southern Lake, Golden Gate Park						6	
May 16	Stow Lake, Golden Gate Park				4	5		2
May 16	Upper Stow Lake, Golden Gate Park		8					
	Totals	178	363	27	454	39	77	253

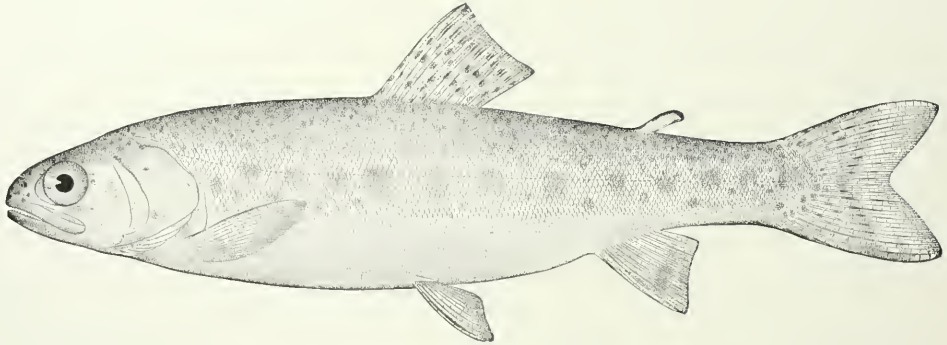
*Adults.

RECORD OF SPAWN-TAKING.

RECORD OF WORK TAKING RAINBOW TROUT SPAWN AT BESWICK STATION.

1895.	Number of Fish Taken. A. M. M.	A. M. F.	P. M. M.	P. M. F.	Fish Spawned. M.	Fish Spawned. F.	Number of Eggs Taken.	Fish Died from Any Cause. M.	Fish Died from Any Cause. F.	Weather—Cloudy or Clear.	Temperature of Water. Lowest.	Temperature of Water. Highest.	Remarks.
February 1													
February 2										Clear.	38°	41°	Wind north.
February 3										Clear.	39	40	Wind north.
February 4										Clear.	38	40	Wind north; sky hazy.
February 5										Clear.	37	38	Air 16° above zero.
February 6										Clear.	35	37	
February 7										Clear.	34	37	
February 8										Cloudy.	38	39	
February 9										Clear.	38	40	
February 10										Clear.	38	40	Hazy P. M.
February 11										Cloudy.	40	42	Snowing A. M.; 6 inches.
February 12										Cloudy.	40	43	Light rain P. M.
February 13										Cloudy.	40	43	Light rain prevailing.
February 14										Cloudy.	38	40	
February 15										Cloudy.	38	42	
February 16	1	3								Cloudy.	40	42	
February 17										Cloudy.	40	42	
February 18	3	1			4	4	6,000			Cloudy.	39	43	
February 19	1	3								Cloudy.	39	44	
February 20	1	2								Cloudy.	40	44	Light rain.
February 21										Cloudy.	40	44	
February 22	2	4			4	7	14,000			Cloudy.	40	43	Rain showers.
February 23	4	8			2	4	7,000			Cloudy.	38	41	Creek rising.
February 24	2	2	1	2						Clear.	38	45	
February 25					3	6	9,000			Clear.	37	44	Warm.
February 26		1								Clear.	36	42	
February 27										Clear.	37	44	
February 28		1			2	5	10,000			Cloudy.	40	44	Hazy.
Totals	14	25	1	2	15	26	46,000						

Average weight of fish—males, 3 pounds; females, 3½ pounds. Lowest temperature of water, 34°; highest temperature of water, 45°.



RAINBOW TROUT, Young.—*Salmo irideus.*

RECORD OF WORK TAKING RAINBOW TROUT SPAWN AT BESWICK STATION—Continued.

1895.	Number of Fish Taken. A. M.		Number of Fish Taken. P. M.		Fish Spawned.		Number of Eggs Taken.	Fish Died from Any Cause.		Weather—Cloudy or Clear.	Temperature of Water.		Remarks.
	M.	F.	M.	F.	M.	F.		M.	F.		Lowest.	Highest.	
March 1	3	5								Cloudy.	40°	44°	
March 2	3	3								Cloudy.	40	43	
March 3		2								Clear.	37	42	
March 4	1	2	5	3	5	8	9,500			Clear.	36	40	
March 5										Clear.	38	44	
March 6			5	1						Clear.	37	43	
March 7	3	3	2		4	7	13,000			Clear.	39	42	
March 8			2	1						Clear.	39	45	
March 9	6	6	4	2						Clear.	37	44	
March 10			4	4	8	14	21,000			Clear.	36	44	
March 11	6	4								Clear.	36	44	
March 12			2	2						Cloudy.	38	41	
March 13					3	7	11,000			Clear.	36	41	
March 14			1	1						Cloudy.	36	40	
March 15										Cloudy.	35	41	
March 16										Cloudy.	38	42	
March 17	6	3								Clear.	38	41	
March 18	3	2			4	6	9,000			Cloudy.	38	44	
March 19	5	3								Cloudy.	39	44	
March 20										Cloudy.	39	43	
March 21										Cloudy.	39	44	
March 22	1	1			2	3	3,500			Cloudy.	37	42	
March 23			3							Cloudy.	40	46	
March 24	4	3	21	14						Clear.	38	48	
March 25	3	5	2	4	10	19	30,000			Cloudy.	41	46	
March 26	3	4	2	4						Cloudy.	42	48	
March 27	9	9	5	8	6	9	14,000			Cloudy.	44	46	
March 28	3	1		1						Cloudy.	40	44	
March 29					3	4	6,000			Cloudy.	39	42	
March 30										Clear.	39	46	
March 31	4	3	2	1						Cloudy.	41	46	
Totals	63	59	60	46	45	77	117,000						

Average weight of fish—males, 3 pounds; females, 3½ pounds.
Lowest temperature of water, 35°; highest temperature of water, 48°.

RECORD OF WORK TAKING RAINBOW TROUT SPAWN AT BESWICK STATION—Continued.

1895.	Number of Fish Taken.				Fish Spawned.		Number of Eggs Taken.	Fish Died from Any Cause.		Weather—Cloudy or Clear.	Temperature of Water.		Remarks.
	A. M.		P. M.										
	M.	F.	M.	F.	M.	F.		M.	F.		Lowest.	Highest.	
April 1					8	12	13,000			Cloudy.	42°	44°	Heavy shower P. M.
April 2			3	3						Cloudy.	38	44	
April 3					3	5	5,000			Cloudy.	42	45	Rain P. M.
April 4										Cloudy.	38	40	Cold and showery.
April 5		1			2	5	6,000			Clear.	36	44	Cold A. M.
April 6			3	2						Clear.	40	48	
April 7			5	4						Clear.	41	48	Hazy P. M.
April 8	1	4			2	4	4,000			Cloudy.	44	47	
April 9			1	4						Clear.	43	47	Windy.
April 10				1						Cloudy.	40	44	Cold wind.
April 11				4	6	9	12,000			Clear.	40	47	
April 12			4							Clear.	39	48	
April 13	2	3	1	3						Cloudy.	44	48	Hard wind, some rain.
April 14										Clear.	44	46	Cold and showery.
April 15										Cloudy.	44	47	Cold and showery.
April 16			1	2						Cloudy.	44	47	Windy and showery.
April 17					5	7	7,000			Clear.	42	46	Perfect day.
April 18										Clear.	42	47	Warm.
April 19										Clear.	42	48	No fish running.
April 20				2						Clear.	41	49	Warm.
April 21										Clear.	43	48	No fish running.
April 22				6						Clear.	43	58	Warm.
April 23				7						Clear.	42	67	Warm.
April 24					9	12	20,000			Clear.	43	68	Warm.
April 25			4	4						Clear.	43	60	Thunder and lightning; rain in evening.
April 26					1	2	3,000			Cloudy.	44	50	Cloudy and sultry.
April 27				1						Cloudy.	43	48	Cold.
April 28										Cloudy.	42	45	
April 29										Clear.	42	50	
April 30					2	5	5,000			Cloudy.	42	48	
Totals	3	8	22	43	38	61	75,000						

Average weight of fish—males, 3 pounds; females, 3½ pounds.
Lowest temperature of water, 36°; highest temperature of water, 68°.

RECORD OF WORK TAKING RAINBOW TROUT SPAWN AT BESWICK STATION—Continued.

1895.	Number of Fish Taken.				Fish Spawned.		Number of Eggs Taken.	Fish Died from Any Cause.		Weather—Cloudy or Clear.	Temperature of Water.		Remarks.
	A. M.		P. M.										
	M.	F.	M.	F.	M.	F.		M.	F.		Lowest.	Highest.	
May 1										Cloudy.	42°	48°	Rain.
May 2										Cloudy.	42	50	Showery.
May 3										Cloudy.	44	48	Rain.
May 4										Cloudy.	45	48	Rain, creek high.
May 5	5	1								Cloudy.	44	48	Rained all day.
May 6										Cloudy.	44	48	
May 7	3	1								Clear.	42	49	Warm.
May 8										Cloudy.	41	46	Cold.
May 9										Clear.	38	46	Frost; cold.
May 10										Clear.	44	52	
May 11										Clear.	42	58	Very warm.
May 12										Clear.	46	57	
May 13										Clear.	45	58	
May 14										Clear.	46	60	
May 15										Clear.	48	62	
May 16										Clear.	47	60	
May 17										Clear.	48	63	
May 18										Clear.	48	62	
May 19										Clear.			
May 20										Clear.			
May 21										Clear.			Station closed.

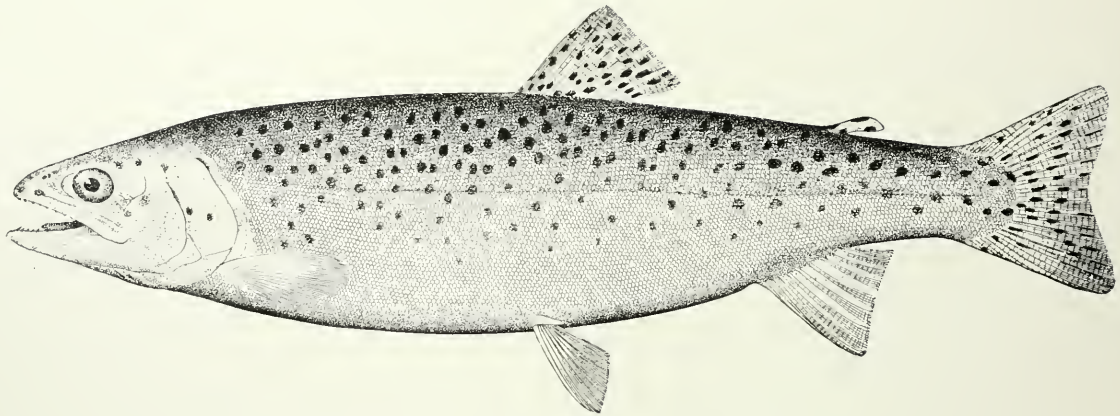
Averege weight of fish—males, 3 pounds; females, 3½ pounds.
Lowest temperature of water, 38°; highest temperature of water, 63°.

(Signed:) T. E. SULLIVAN, Superintendent.

RECORD OF WORK TAKING CUT-THROAT TROUT SPAWN AT TAYLOR CREEK STATION, LAKE TAHOE.

1895.	Number of Fish Taken.				Fish Spawned.		Number of Eggs Taken.	Fish Died from Any Cause.		Weather—Cloudy or Clear.	Temperature of Water.		Remarks.
	A. M.		P. M.										
	M.	F.	M.	F.	M.	F.		M.	F.		Lowest.	Highest.	
April 5			10	10						Clear.			Very cold, and west wind.
April 6			25	12						Clear.			Very cold, and west wind.
April 7			5	7						Clear.			Very cold, and west wind.
April 8			26	27						Clear.			Pleasant.
April 9			102	92						Clear.			Pleasant.
April 10			41	42						Clear.			Pleasant.
April 11			42	54						Cloudy.			
April 12			300	252						Cloudy.			Strong wind; 3 inches snow.
April 13			52	30						Clear.			Windy.
April 14			47	58	165	161	325,000	1	1	Clear.	35°		Windy.
April 15			32	37						Clear.			Windy.
April 16			57	73	167	162	310,000			Clear.	37		Windy.
April 17			4	6						Clear.			Very warm.
April 18			169	164	150	140	265,000			Clear.	37		Very warm.
April 19			13	13						Clear.			Strong east wind.
April 20			160	181						Clear.			Strong east wind.
April 21			25	39						Clear.			Strong east wind.
April 22			57	35	180	145	260,000		2	Clear.	38		Warm.
April 23			129	152						Clear.			Warm.
April 24			71	101	150	100	193,000	2	1	Cloudy.	39		
April 25			20	35						Cloudy.			P. M. rain and 2 inches snow.
April 26			15	42	165	126	235,000	2	1	Cloudy.	39		Squally A. M.; 10 inches snow P. M.
April 27			79	161						Cloudy.			Squally.
April 28			29	38	200	183	360,000	3	4	Clear.	41		
April 29			85	130						Cloudy.			
April 30			20	37						Cloudy.			
Totals			1,615	1,818	1,177	1,017	1,948,000	8	9				

Average weight of fish—males, 1½ pounds; females, 1¼ pounds.
Lowest temperature of water, 35°.



CUT-THROAT, OR TAHOE TROUT.—*Salmo mykiss.*

RECORD OF WORK TAKING CUT-THROAT TROUT SPAWN AT TAYLOR CREEK STATION, LAKE TAHOE—Continued.

1895.	Number of Fish Taken.				Fish Spawned.		Number of Eggs Taken.	Fish Died from Any Cause.		Weather—Cloudy or Clear.	Temperature of Water.		Remarks.
	A. M.		P. M.										
	M.	F.	M.	F.	M.	F.		M.	F.		Lowest.	Highest.	
May 1			88	117	190	184	335,000	4	4	Cloudy.	44°		Rain P. M.
May 2			58	112						Cloudy.			Rain A. M.
May 3			81	142	200	193	371,000	10	3	Cloudy.			Showery.
May 4			42	58						Cloudy.			Showery.
May 5			49	62						Clear.			Heavy southwest wind.
May 6			24	41	216	203	376,000	9	9	Clear.			Heavy southwest wind.
May 7			15	30						Clear.			Heavy southwest wind.
May 8			29	54	205	193	365,000	3	1	Clear.			Heavy southwest wind.
May 9			50	86						Clear.			Strong east wind.
May 10			71	162	161	154	270,000	5	2	Clear.			Strong east wind.
May 11			18	42						Clear.			Pleasant.
May 12			32	107						Clear.			Pleasant.
May 13			60	122	87	75	135,000	3	4	Clear.			Pleasant.
May 14			35	81						Clear.			Warm.
May 15			25	57						Clear.			Warm.
May 16										Clear.			Clear.
May 17			14	35						Clear.			Clear.
May 18					183	160	280,000	7	1	Clear.			Clear.
May 19			4	15						Clear.			Clear.
May 20										Clear.			Clear.
May 21										Clear.			Clear.
May 22					98	87	160,000	8	2	Clear.			Clear; ceased operations.

Average weight of fish—males, 1½ pounds; females, 1¼ pounds.
Lowest temperature of water, 44°.

(Signed:) E. W. HUNT, Superintendent.

RECORD OF WORK TAKING CUT-THROAT TROUT SPAWN AT BLACKWOOD CREEK STATION, LAKE TAHOE.

1895.	Number of Fish Taken.				Fish Spawned.		Number of Eggs Taken.	Fish Died from Any Cause.		Weather—Cloudy or Clear.	Temperature of Water.		Remarks.
	A. M.		P. M.										
	M.	F.	M.	F.	M.	F.		M.	F.		Lowest.	Highest.	
July 2			3							Clear.			
July 3			2	1						Clear.			
July 4			1							Clear.			
July 5			6	2						Clear.			
July 6										Clear.			
July 7			7	3						Clear.			
July 8										Clear.			
July 9				8						Clear.			
July 10			4	1						Clear.			
July 11			3							Clear.			
July 12			7	3						Clear.			
July 13			12	2						Clear.			
July 14			12	4						Clear.			
July 15			15	4						Clear.			
July 16			7	4						Clear.			
July 17			11	6	40	35	63,000	5		Clear.	51°		
July 18			7	5						Clear.			
July 19			45	28						Clear.			
July 20			6	4				1		Clear.			
July 21			4	1				3		Clear.			
July 22			1	4						Clear.			
July 23			3	2	42	34	61,000	2		Clear.	52		
July 24			4	2						Clear.			
July 25			3	1						Clear.			
July 26			5	2						Clear.			
July 27			8	6						Clear.			
July 28			5	4						Clear.			
July 29			6	2						Clear.			
July 30			5	1						Clear.			
July 31			6	2	30	24	36,000	3	2		54		Ceased operations.
Totals			198	102	112	93	160,000	14	2				

Average weight of fish—males, 1½ pounds; females, 1¼ pounds.
Lowest temperature of water, 51°.

(Signed:) E. W. HUNT, Superintendent.

RECORD OF WORK TAKING SALMON SPAWN AT BATTLE CREEK STATION.

1895.	* Number of Fish Taken.				Fish Spawned.		Number of Eggs Taken.	Fish Died from Any Cause.		Weather—Cloudy or Clear.	Temperature of Water.		Remarks.
	A. M.		P. M.										
	M.	F.	M.	F.	M.	F.		M.	F.		Lowest.	Highest.	
October 21					11	11	50,000		11	Clear.	53°	60°	
October 22					28	28	150,000		28	Clear.	52	60	
October 23										Clear.	51	60	
October 24					37	37	200,000		37	Clear.	50	61	
October 25					42	42	259,000		42	Clear.	50	60	
October 26					33	33	179,000		33	Clear.	50	60	
October 27										Clear.	50	58	
October 28					76	76	462,000		76	Clear.	51	58	
October 29					103	103	555,000		103	Clear.	50	58	
October 30					64	64	372,500		64	Clear.	50	58	
October 31					38	38	221,000		38	Clear.	48	57	
Totals					432	432	2,448,500		432				

Average weight of fish—males, 36 pounds; females, 28 pounds.
Lowest temperature of water, 48°; highest temperature of water, 61°.

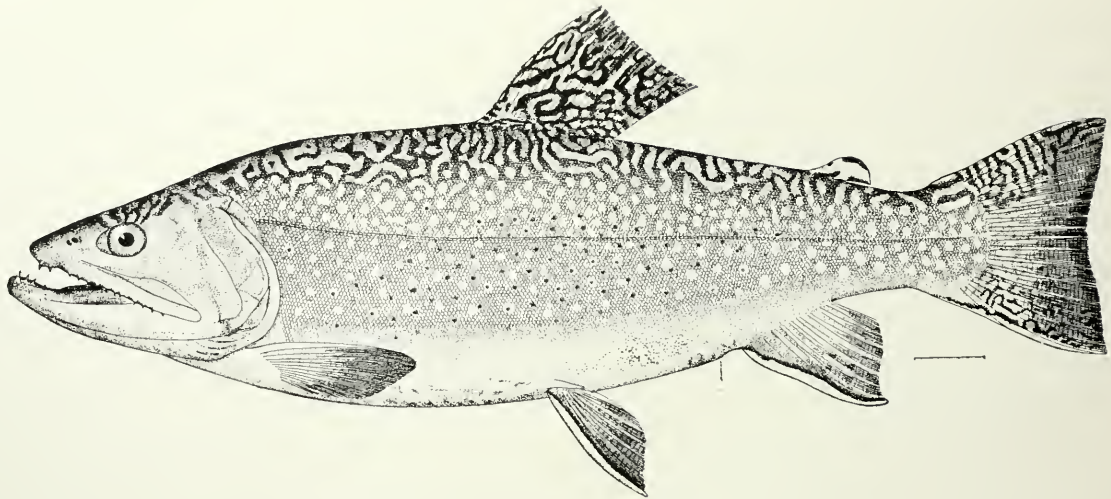
* Only ripe fish taken out of net.

RECORD OF WORK TAKING SALMON SPAWN AT BATTLE CREEK STATION—Continued.

1895.	Number of Fish Taken.				Fish Spawned.		Number of Eggs Taken.	Fish Died from Any Cause.		Weather—Cloudy or Clear.	Temperature of Water.		Remarks.
	A. M.		P. M.										
	M.	F.	M.	F.	M.	F.		M.	F.		Lowest.	Highest.	
November 1	------	------	------	------	133	133	660,000	------	133	Clear.	50°	58°	----------
November 2	------	------	------	------	68	68	360,000	------	68	Clear.	51	58	----------
November 3	------	------	------	------	64	64	330,000	------	64	Clear.	50	52	----------
November 4	------	------	------	------	105	105	660,000	------	105	Clear.	48	53	----------
November 5	------	------	------	------	------	------	------	------	------	Clear.	48	53	----------
November 6	------	------	------	------	221	221	1,250,000	------	221	Clear.	46	52	----------
November 7	------	------	------	------	96	96	525,000	------	96	Clear.	46	53	----------
November 8	------	------	------	------	152	152	910,000	------	152	Clear.	46	55	----------
November 9	------	------	------	------	------	------	------	------	------	Clear.	48	53	----------
November 10	------	------	------	------	196	196	1,190,000	------	196	Clear.	50	52	----------
November 11	------	------	------	------	208	208	1,190,000	------	208	Clear.	50	54	----------
November 12	------	------	------	------	100	100	630,000	------	100	Clear.	48	54	---------- Hatchery filled; racks taken out.
Totals	------	------	------	------	1,343	1,343	7,705,000	------	1,343				

Average weight of fish—males, 36 pounds; females, 28 pounds.
Lowest temperature of water, 46°; highest temperature of water, 58°.

(Signed:) E. W. HUNT, Superintendent.



EASTERN BROOK TROUT.—*Salvelinus fontinalis.*

RECORD OF WORK TAKING RAINBOW TROUT SPAWN AT BESWICK STATION.

1896.	Number of Fish Taken.				Fish pawned.		Number of Eggs Taken.	Fish Died from Any Cause.		Weather—Cloudy or Clear.	Temperature of Water.		Remarks.
	A. M.		P. M.										
	M.	F.	M.	F.	M.	F.		M.	F.		Lowest.	Highest.	
February 1	7	3								Cloudy.	40°	42°	Showery.
February 2	3	1								Clear.	40	43	
February 3	3									Cloudy.	38	40	Snow A. M.
February 4	3	1								Cloudy.	39	43	
February 5	6	3								Cloudy.	40	41	North wind.
February 6	5	4								Clear.	38	42	
February 7	2				10	10	12,500			Clear.	38	43	
February 8	3	3								Clear.	38	43	
February 9	1	1								Clear.	39	42	Cold wind.
February 10	5	1								Clear.	38	43	Cold wind.
February 11	3	1								Clear.	37	42	Cold wind.
February 12	2	3								Clear.	36	43	Cold wind.
February 13	2	3			6	6	7,500			Cloudy.	38	44	
February 14	1	3								Cloudy.	41	44	
February 15	10	6								Clear.	40	45	
February 16	3	5								Cloudy.	39	45	
February 17	5	5			19	14	20,000			Clear.	39	47	North wind.
February 18	6	6								Clear.	40	47	North wind.
February 19	8	3								Clear.	40	48	
February 20	4	8			19	14	24,000			Cloudy.	40	46	South wind.
February 21	19	9								Clear.	40	48	South wind.
February 22	2	7								Clear.	39	46	
February 23	4	3			41	19	27,000			Cloudy.	40	46	
February 24	24	9								Cloudy.	40	46	Rain P. M.
February 25	2	7								Cloudy.	40	46	Rain P. M.
February 26	75	79			42	33	54,000			Clear.	43	46	
February 27	45	28			17	13	20,000			Cloudy.	43	46	Rain.
February 28	30	22								Cloudy.	42	45	Showery.
February 29	3	2								Cloudy.	42	45	Snow.
Totals	283	226			154	109	165,000						

Avergage weight of fish—males, 2½ pounds; females, 2 pounds.
Lowest temperature of water, 36°; highest temperature of water, 48°.

RECORD OF WORK TAKING RAINBOW TROUT SPAWN AT BESWICK STATION—Continued.

1896.	Number of Fish Taken.				Fish Spawned.		Number of Eggs Taken.	Fish Died from Any Cause.		Weather—Cloudy or Clear.	Temperature of Water.		Remarks.
	A. M.		P. M.										
	M.	F.	M.	F.	M.	F.		M.	F.		Lowest.	Highest.	
March 1	8	1			30	30	45,000			Cloudy.	35°	38°	2 inches snow.
March 2	4	2								Cloudy.	36	39	Snow.
March 3										Cloudy.	37	39	Snow.
March 4										Cloudy.	35	40	Cold wind.
March 5		6			13	11	25,000			Cloudy.	36	40	2½ inches snow.
March 6										Cloudy.	39	42	
March 7	5	7								Cloudy.	39	44	
March 8	12	14								Cloudy.	41	43	
March 9	4	1			54	49	65,000			Clear.	38	46	
March 10	4	5								Clear.	40	46	
March 11	3	2								Clear.	41	49	
March 12	17	13								Clear.	40	50	
March 13	6	4			27	26	40,000			Clear.	40	50	
March 14	3	12								Cloudy.	40	43	Snow.
March 15	4	3								Cloudy.	39	48	
March 16	8	13								Cloudy.	44	50	Showery.
March 17	17	11			21	22	25,000			Clear.	43	52	
March 18	10	8								Cloudy.	42	50	
March 19	4	11								Cloudy.	44	52	
March 20	15	29			34	29	35,000			Cloudy.	46	58	Rain.
March 21	8	24								Clear.	44	48	
March 22	3	5								Cloudy.	44	48	Showery.
March 23	3	4								Cloudy.	45	50	Showery.
March 24	10	17								Cloudy.	45	48	Showery.
March 25	8	24								Cloudy.	44	48	Showery.
March 26	21	59			60	58	60,000			Cloudy.	46	47	Rain.
March 27										Cloudy.	42	48	Showery.
March 28										Cloudy.	39	46	
March 29	5	19			41	40	40,000			Cloudy.	42	45	Cold wind.
March 30										Cloudy.	39	45	2 inches snow.
March 31					29	26	20,000			Clear.	38	45	Windy.
Totals	182	294			309	289	355,000						

Average weight of fish—males, 2½ pounds; females, 2 pounds.
Lowest temperature of water, 35°; highest temperature of water, 58°.

(Signed:) W. H. SHEBLEY, Superintendent.

RECORD OF WORK TAKING CUT-THROAT TROUT SPAWN AT TAYLOR CREEK STATION, LAKE TAHOE.

1896.	Number of Fish Taken.				Fish Spawned.		Number of Eggs Taken.	Fish Died from Any Cause.		Weather—Cloudy or Clear.	Temperature of Water.		Remarks.
	A. M.		P. M.										
	M.	F.	M.	F.	M.	F.		M.	F.		Lowest.	Highest.	
April 1			32	14						Clear.			
April 2			97	69						Clear.			
April 3			130	112						Clear.			Light south wind.
April 4			39	31						Cloudy.			Light south wind.
April 5										Cloudy.			Strong south wind.
April 6			30	17						Cloudy.			6 inches snow; squally.
April 7			111	72						Cloudy.			
April 8			80	50		220	456,500	1	3	Cloudy.			
April 9			14	4						Cloudy.			12 inches snow.
April 10										Cloudy.			East wind; heavy swell.
April 11			55	46						Cloudy.			
April 12			116	109		110	208,250	4	2	Clear.			
April 13			71	45						Cloudy.			Rain; southwest wind.
April 14			1	1						Cloudy.			Squally.
April 15						100	220,000	1	1	Cloudy.			East wind.
April 16										Cloudy.			Squally.
April 17			67	59						Cloudy.			East wind.
April 18			19	18						Cloudy.			Strong southwest wind.
April 19			6	9		70	142,600	3		Clear.			10° above zero.
April 20			70	50						Clear.			10° above zero.
April 21			69	67						Cloudy.			Squally.
April 22			20	34		104	242,500		1	Cloudy.			Southwest wind.
April 23			43	27						Cloudy.			Squally.
April 24			1	3						Cloudy.			20 inches snow.
April 25			29	26						Cloudy.			Squally.
April 26			13	17		94	198,250	1	1	Cloudy.			Southwest wind.
April 27			80	67						Cloudy.			Southwest wind.
April 28			59	47						Cloudy.			Southwest wind.
April 29										Cloudy.			
April 30			118	74		110	229,250			Cloudy.			6 inches snow.
Totals			1,365	1,068			1,697,350	10	8				

Average weight of fish—males, 1¾ pounds; females, 1½ pounds. Lowest temperature of water, 38°; highest temperature of water, 42°.

RECORD OF WORK TAKING CUT-THROAT TROUT SPAWN AT TAYLOR CREEK STATION, LAKE TAHOE—Continued.

1896.	Number of Fish Taken. A. M. M.	A. M. F.	P. M. M.	P. M. F.	Fish Spawned. M.	Fish Spawned. F.	Number of Eggs Taken.	Fish Died from Any Cause. M.	Fish Died from Any Cause. F.	Weather—Cloudy or Clear.	Temperature of Water. Lowest.	Temperature of Water. Highest.	Remarks.
May 1			2	4						Cloudy.			Squally; southwest wind.
May 2			58	47						Cloudy.			Squally; southwest wind.
May 3			39	41		92	190,250	3	1	Cloudy.			
May 4			40	39						Cloudy.			Rain and snow.
May 5			19	25						Cloudy.			Squally.
May 6			56	28		75	160,000	3		Cloudy.			Squally.
May 7			127	87						Cloudy.			Warm.
May 8										Cloudy.			Southwest wind.
May 9			16	23						Cloudy.			Southwest wind.
May 10			19	14		85	180,000	2		Cloudy.			Southwest wind.
May 11			15	20						Clear.			
May 12			76	77						Cloudy.			First warm day.
May 13			125	95						Cloudy.			Light east wind.
May 14										Cloudy.			Strong east wind.
May 15			74	76		105	200,000	4	2	Cloudy.			Strong east wind.
May 16			61	61						Cloudy.			Southwest wind.
May 17			36	49		155	283,900	4	1	Cloudy.			Southwest wind.
May 18			40	67		39	50,000			Clear.			South wind.
May 19			84	94						Cloudy.			South wind.
May 20			54	80		170	333,200	1	5	Clear.			Mild.
May 21			55	55						Cloudy.			Rain.
May 22			41	33						Cloudy.			Snow.
May 23			82	76		70	100,000	3	2	Cloudy.			Showery.
May 24			50	32		185	370,000			Cloudy.			Warm.
May 25			21	20						Clear.			Warm.
May 26			56	72		85	150,000	4	3	Clear.			Warm.
May 27			33	30						Cloudy.			Thunder shower.
May 28			5	17		145	200,000	7	2	Cloudy.			Showery.
May 29			7	10						Cloudy.			Warm.
May 30			4	6						Clear.			Thunder shower.
May 31			7	3		75	110,000	1	4	Clear.			Warm.
Totals			1,302	1,281		1,281	2,317,350	37	20				

Average weight of fish—males, 1½ pounds; females, 1½ pounds.
Lowest temperature of water, 43°; highest temperature of water, 49°.

(Signed:) E. W. HUNT, Superintendent.

RECORD OF WORK TAKING CUT-THROAT TROUT SPAWN AT BLACKWOOD CREEK STATION, LAKE TAHOE.

1896.	Number of Fish Taken. A. M. M.	A. M. F.	P. M. M.	P. M. F.	Fish Spawned. M.	Fish Spawned. F.	Number of Eggs Taken.	Fish Died from Any Cause. M.	Fish Died from Any Cause. F.	Weather—Cloudy or Clear.	Temperature of Water. Lowest.	Temperature of Water. Highest.	Remarks.
May 1										Clear.			Trap put in April 10th. No fish caught until May 4th.
May 2										Clear.			
May 3										Clear.			
May 4			1	1						Cloudy.			Showery; heavy wind.
May 5			2							Cloudy.			3 inches snow.
May 6			4	9						Cloudy.			
May 7				2						Cloudy.			
May 8			3							Cloudy.			
May 9			4	2						Cloudy.			
May 10			2	2						Cloudy.			
May 11			2	2						Cloudy.			Windy; snow.
May 12			6	4		18	73,300			Clear.			Warm.
May 13			2	4						Clear.			Warm.
May 14			6	9						Clear.			Warm.
May 15			5	6						Cloudy.			Windy.
May 16			3	2						Cloudy.			Windy.
May 17										Cloudy.			
May 18				2		19	50,000			Cloudy.			Snow and wind.
May 19			1	1						Clear.			Cold.
May 20				4						Clear.			Cold.
May 21			2	4						Clear.			Cold.
May 22			2	3						Clear.			Water very high.
May 23										Clear.			
May 24										Clear.			
May 25						13	60,000			Clear.			Warm.
May 26										Clear.			
May 27										Cloudy.			
May 28										Cloudy.			Thunderstorms.
May 29										Clear.			
May 30						7	40,000			Clear.			
May 31										Clear.			
Totals			45	57			223,300						

Average weight of fish—males, 7½ pounds; females, 7 pounds. Lowest temperature of water, 38°; highest temperature of water, 42°.

RECORD OF WORK TAKING CUT-THROAT TROUT SPAWN AT BLACKWOOD CREEK STATION, LAKE TAHOE—Continued.

1896.	Number of Fish Taken. A. M. M.	A. M. F.	P. M. M.	P. M. F.	Fish Spawned. M.	Fish Spawned. F.	Number of Eggs Taken.	Fish Died from Any Cause. M.	Fish Died from Any Cause. F.	Weather—Cloudy or Clear.	Temperature of Water. Lowest.	Temperature of Water. Highest.	Remarks.
July 1			3	7						Clear.			
July 2			1	1						Clear.			
July 3			2	4						Clear.			
July 4			4							Clear.			
July 5			5	3						Clear.			
July 6										Clear.			
July 7										Clear.			
July 8			3	1						Clear.			
July 9			3	5						Clear.			
July 10			2	4						Clear.			
July 11			4	6						Clear.			
July 12			3	4						Clear.			
July 13			2	5						Clear.			
July 14			1	2		30	46,000			Clear.			
July 15			4	3						Clear.			
July 16			3	5						Clear.			
July 17			6	19						Clear.			
July 18			1	12						Clear.			
July 19			2	2						Clear.			
July 20			2	3		35	60,000			Clear.			
July 21			3	4						Clear.			
July 22			2	4						Clear.			
July 23			8	8						Clear.			
July 24			2	2						Clear.			
July 25				2						Clear.			
July 26										Clear.			
July 27						13	20,000			Clear.			
July 28										Clear.			Trap taken out.
Totals			66	106		78	126,000						

Average weight of fish—males, 2½ pounds; females, 2½ pounds.
Lowest temperature of water, 46°; highest temperature of water, 55°.

(Signed:) F. A. SHEBLEY, Assistant Superintendent.

DOLLY VARDEN TROUT.—*Salvelinus malma.*

GAME STATISTICS.

TABLES SHOWING RECEIPT OF GAME BIRDS IN SAN FRANCISCO AND LOS ANGELES MARKETS, AND COUNTIES FROM WHICH SAME WERE SHIPPED.

*TABLE No. 4—PROTECTED BIRDS—MONTH OF OCTOBER, 1895.

From County of—	Canvasback	Mallard	Sprig	Teal	Widgeon	Small Ducks	Gray Duck	Blackjack	Redhead	Butterballs	Wood Ducks	Wiretails	Sheldrake	Quail	Doves	Rail
Alameda														48		
Calaveras														186		
Colusa	1	20	8		23	8			1							
Contra Costa	4	42	22	67	54	8		20						176		
Fresno		113	148	292	41	16										
Kern		7	28	412		74		2	4					106	179	
Kings	9	94	81	239	44	21		7								
Marin														490		
Merced		284	814	4,170	407	86								88		
Monterey														461		
San Benito														66		
San Joaquin	1	90	26	63	87	10		11	1							
San Mateo														22		
Sacramento		12	13	3	32	11								314		
Solano	2	26	5	12	7	13									1	
Sonoma	14		4	4				9						414		
Siskiyou		18	13	3	9								5			
Stanislaus		21	46	41	8	6										
Tulare														48		
Yolo	27	330	320	68	757	104		3	2		140					
Totals	58	1,057	1,528	5,374	1,469	357		52	8		140		5	2,419	180	

*Tables Nos. 1, 2, and 3 are to be found in report proper.

TABLE No. 5—NON-PROTECTED BIRDS—MONTH OF OCTOBER, 1895.

From County of—	Larks	Wild Pigeon	Common Snipe	English Snipe	Curlew	Plover	Gray Geese	White Geese	Brant	Honke	Swan	Crane	Bittern
Calaveras	110												
Colusa							13		5				
Contra Costa			16	43			81	18	1				
Fresno							213		56				
Glenn								10	162				
Kern			2										
Kings			1		2		325	53	25			21	
Madera	14												
Merced	42		130	34	21	9	1,226	699	322			11	
San Joaquin				44			38	9	12				
San Mateo			10										
Sacramento				2			11						
Solano				4			47	71	29				
Sonoma			22										
Siskiyou			3	3									
Stanislaus							198	51	46			2	
Sutter									54				
Tulare		96											
Yolo							229	21	2				
Totals	166	96	184	130	23	8	2,381	932	714			34	

TABLE No. 6—PROTECTED BIRDS—MONTH OF NOVEMBER, 1895.

From County of—	Canvas-back.	Mallard.	Sprig.	Teal.	Widgeon.	Small Ducks.	Gray Duck.	Black-jack.	Red-head.	Butter-balls.	Wood Ducks.	Wire-tails.	Shel-drake.	Quail.	Doves.	Rail.
Alameda	6	10	183	222	46	31								1,134		
Butte	4	27	16	14	48	12					2					
Calaveras														1,326	65	
Colusa	3	386	125	108	181	56		1	2					291		
Contra Costa	5	542	247	138	362	49	93	6	1					195	3	
Fresno		451	277	208	704	42		1					1	203		
Glenn		47	15	217	873									78		
Kern	71	242	703	2,188	440	1,470		3	37					4,598	73	2
Kings	17	597	266	200	235	84		2						1,408	34	
Los Angeles	14	40	394	916	547	331								3,706	969	
Mariposa		63	11	13	20	7								360		
Marin	6	4	11	2	13									716		
Madera	1	18	43	27	37	14			12						2	
Mendocino														129		
Merced	12	2,815	2,143	7,216	3,161	533	5		3	2				1,411	9	
Monterey	1	4		19	7									12,663	3	
Napa	1	25	59	288	134	19										
Orange	38	38	461	407	157	279								2,806	879	
Plumas		83	31	5	2											
Riverside														1,411	37	
San Benito														2,815		
San Bernardino		2		28	47	4								1,895	235	1
San Diego		3	25	48	3	13		8						2,662	22	
San Joaquin	67	1,786	419	931	862	207	11	75	10		4			475		
San Luis Obispo	5	20	43	13	113	101		22	2		3			6,706	16	
San Mateo														1,073		
Santa Barbara	143	14	17	60	257	36	3		6					2,423		
Santa Clara	3	43	28	143	27	4								411		
Santa Cruz														393		
Sacramento	43	1,141	479	424	973	278		10	13	2			2	1,151	2	
Shasta	25	181	30	51	70	11										
Solano	216	1,319	628	865	1,364	300	2	79		5	20					
Sonoma	350	35	83	74	28	10								2,472	120	1
Siskiyou	315	446	520	260	254	109	89		6							
Stanislaus	12	828	667	2,532	666	132		2						659		
Sutter	67	518	217	119	423	134	3	32	7		8			89		
Tulare		105	43	153	24	15						2		121	13	
Tuolumne														503	2	
Ventura														453	33	
Yolo	141	3,133	2,073	1,111	3,805	678		6	17				1	255		
Yuba		68	4	16	20									121		
Totals	1,569	15,034	10,261	19,016	15,903	4,959	206	217	116	9	37	2	4	57,112	2,517	4

TABLE No. 7—NON-PROTECTED BIRDS—MONTH OF NOVEMBER, 1895.

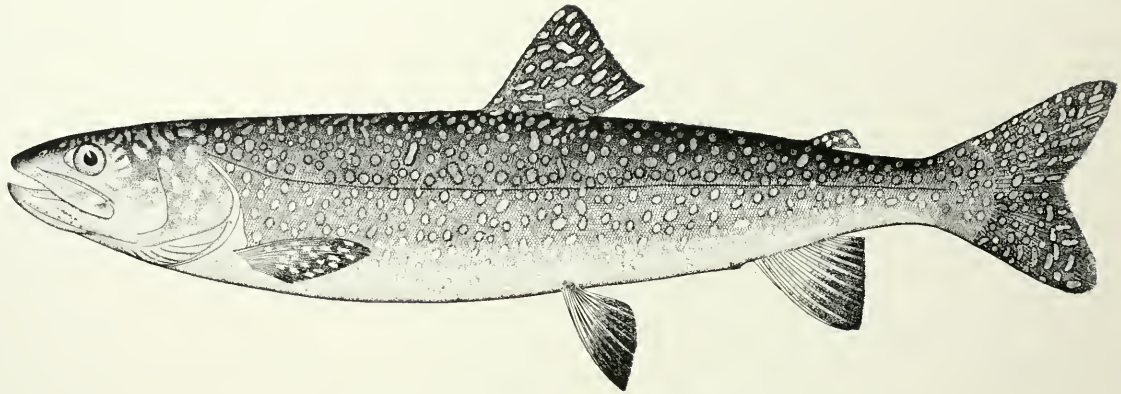
From County of—	Larks	Wild Pigeon	Common Snipe	English Snipe	Curlew	Plover	Gray Geese	White Geese	Brant	Honker	Swan	Crane	Bittern
Alameda			45	1									
Butte							11	3	32				
Calaveras	19	3											
Colusa				6			97	19	154				
Contra Costa	5		9	143		88	96	5	6	8		2	
Fresno							492	80	710	38	3		
Glenn							96	131	421				
Kern		12	185	108	20	3	17	4	24		4		
Kings							21	59	43	13		3	
Los Angeles			252	261	17	174	1	4					
Mariposa				1			4						
Marin				19									
Madera			7	1			23	2	15				
Merced	12		86	245	75	11	1,345	546	2,033	59	7	26	
Modesto							47	8	7				
Monterey	9	76		16						6			
Orange			534	1	173	265	17	14					
Plumas							22	19	35	82		12	
San Benito							4	1	7				
San Diego				3									
San Joaquin			10	241		2	393	66	74	29	3	4	
San Luis Obispo		3		157		4	11	1	18				
Santa Barbara				37		2							
Santa Clara				146									
Sacramento		34	1	37			365	26	20	1	2		2
Solano	43			125			327	137	193	63	6	31	3
Sonoma	281	27							1				
Siskiyou			2	15									
Stanislaus			12	134	4		441	196	428	29	1	3	
Sutter				7			323	195	451	10	11		
Tulare				6			4		16				
Yolo			6	193			1,031	297	146	2	14	1	
Yuba							11	10	3				
Totals	369	155	1,149	1,903	289	549	5,599	1,823	4,837	340	51	82	5

TABLE No. 8—PROTECTED BIRDS—MONTH OF DECEMBER, 1895.

From County of—	Canvas-back.	Mallard.	Sprig.	Teal.	Widgeon.	Small Ducks.	Gray Duck.	Black-jack.	Red-head.	Butter-balls.	Wood Ducks.	Wire-tails.	Shel-drake.	Quail.	Doves.	Rail.
Alameda	22	11	121	236	35	203								692		
Butte		150	83	223	57	14				2				80		
Calaveras		27	5	43	16	8								1,982		
Colusa	9	435	28	88	85	14		6	5	3	6			155	8	
Contra Costa	74	582	347	502	145	185	129	19	3	4	23			23	2	
Fresno	6	830	569	1,208	601	130		1	5					284	1	
Glenn		29	49	1,480	1,076	9						5				
Kern	67	342	739	2,250	438	4,501			39	3			5	1,613	90	8
Kings	110	694	230	1,113	144	438	28	1	1		1			1,550		
Los Angeles	19	70	208	1,257	346	353								5,610	79	
Mariposa		76	41	38	21	14								426		
Marin	24	29	6	73	3	49			1					304		
Madera		10	14	5										177		
Mendocino														88		
Merced	53	2,088	1,199	8,280	5,769	1,219	9	34	4	1	2		10	858	4	
Monterey	113	43	16	72	298	31								16,688	22	
Napa	2	68	60	507	84	126										
Orange	15	78	308	172	252	555								2,879	472	6
Placer														247		
Riverside				1										660	45	
San Benito	24	276	12	28	18	24		5						6,309	12	
San Bernardino		35	95	96	61	13								5,657	104	
San Diego	6	8	44	246	1	256								3,912	41	
San Joaquin	25	2,905	552	1,621	667	451	4	124	7	5	2	5		309		
San Luis Obispo	54	97	40	185	317	15		1		5				8,696	77	
San Mateo		2	4	19	2	4								975		
Santa Barbara	262	19	14	69	243	20								4,103		
Santa Clara	7	80	17	53	7	14				2				45		
Santa Cruz														36		
Sacramento	153	1,177	502	926	628	858	50	15	8	29	3		3	327		1
Shasta	18	31	6	18	7	8										
Solano	241	1,506	967	1,526	882	693	10	47	8	8	5	3	2	1	15	
Sonoma	348	36	76	250	50	62		4						2,995	1	1
Siskiyou	150	604	101	597	516	140	81	21	3	7				153		
Stanislaus	6	994	1,237	4,688	2,254	457		17	1				1	930	54	
Sutter	82	1,514	827	1,029	1,071	346	10	29	30	10	20	6	2			
Tulare		357	261	685	23	94								16	1	
Tuolumne														332		
Ventura		2	3	7								14		437	84	
Yolo	478	2,750	1,573	3,499	3,325	1,424		12	165	17	61	23	9	6		
Yuba	2	101	260	86	102	81			1					815		
Totals	2,360	18,056	10,614	33,176	19,544	12,809	321	333	281	96	123	56	32	70,370	1,112	16

TABLE No. 9—NON-PROTECTED BIRDS—MONTH OF DECEMBER, 1895.

From County of—	Larks	Wild Pigeon	Common Snipe	English Snipe	Curlew	Plover	Gray Geese	White Geese	Brant	Honker	Swan	Crane	Bittern
Alameda					6								
Butte							5	1	44				
Calaveras	204			1			10		2	2			
Colusa							62	14	194	1			
Contra Costa	25		4	114	3	5	93	39	15	110	3		
Fresno							234	87	171	46	2	8	
Glenn				9			25	5	108	5	2		
Kern			303	48	3	16	29	18	2	1	2		
Kings			1	39			14	12	26	13		1	
Los Angeles			240	196	234	340	3	4					
Mariposa							9	1			1		
Madera							6	1					
Merced			89	140	3	4	930	410	1,030	107	17	28	
Monterey	15	4		31							2		
Orange			390	251	174	134	13	8					
San Benito				25			7		2				
San Bernardino			1	13		99							
San Joaquin			14	202		3	413	174	83	76		11	
San Luis Obispo				382	7		5	1					
San Mateo				19									
Santa Barbara			6	30		1					3		
Santa Clara				196			8				4		
Santa Cruz				3									
Sacramento	1			129			177	31	5	11	3		
Solano	66	26		255	8		415	262	391	276	38	21	
Sonoma	187	3	9	56			1			1			
Siskiyou				41				3	6				
Stanislaus				20	1		849	719	1,329	51	2	3	
Sutter							391	18	292	7	76	7	
Tulare			1	17			18	1	5	12			
Yolo	15	24	3	133		1	577	107	140	42	133	1	4
Yuba							8	2		2		2	
Totals	513	57	1,061	2,350	439	603	4,302	1,918	3,845	763	285	85	4



MACKINAW TROUT.—*Salvelinus namaycush.*

TABLE No. 10—PROTECTED BIRDS—MONTH OF JANUARY, 1896.

From County of—	Canvas-back.	Mallard.	Sprig.	Teal.	Widgeon.	Small Ducks.	Gray Duck.	Black-jack.	Red-head.	Butter-balls.	Wood Ducks.	Wire-tails.	Shel-drake.	Quail.	Doves.	Rail.
Alameda	98	3	79	153	11	75		2						571		
Butte		74	50	190	65	17										
Calaveras														1,033		
Colusa	12	285	165	171	214	46		4	4		1			61		
Contra Costa	289	269	234	278	15	162	137	637			3			5		
Fresno	2	581	597	498	319	69								282		
Glenn				19	52											
Kern	57	192	689	1,472	992	1,353		6	5				9	2,857	42	3
Kings	16	308	775	822	447	688			3	2			4	1,364	488	
Los Angeles	17	45	278	937	114	568				17				1,710	217	
Mariposa														167		
Marin														186		
Madera		10		7										126	36	
Mendocino														33		
Merced	13	1,866	1,306	4,898	2,916	779			1	58	2		133	248	7	
Monterey	17	41	36	22	143	36								9,233	47	
Napa	1	11	11	264	29	96										
Orange	7	40	316	578	196	412								2,369	169	2
San Benito	2	50	8		5	2								3,309	22	
San Bernardino														922	41	
San Diego	6		15	88	193		1							3,105		
San Joaquin	20	2,507	598	1,329	226	396		145	2	23	7	1	12	294		
San Luis Obispo	39	9	45	22	215	10				5				9,039	6	
San Mateo	7	1	1	12			2							498		
Santa Barbara	27	7	5	149	229	11	2	3						582		
Santa Clara	1	26	24	55	6	39								244		
Santa Cruz														102		
Sacramento	157	382	227	267	243	367	2	5	7	26	8		1	345		2
Shasta	13	92	30	42	33	29		18	2							
Solano	243	1,271	422	1,141	932	497		318		28			10	14	16	
Sonoma	284	36	59	282	92	211		5		3				1,225		
Siskiyou		101	106	71	25	45								130		
Stanislaus	6	322	361	1,778	1,194	211		7		11				204		
Sutter	87	615	959	503	903	172		2	11	6	8					
Tulare		150	33	232	7	105								215	67	
Tuolumne														342		
Yolo	570	1,396	1,624	2,624	2,978	639		39	8		109	30	7	118		
Yuba	4	141	177	131	15	14		1		10				441		
Totals	1,995	10,831	9,230	19,045	12,809	7,049	144	1,194	43	189	138	31	176	41,374	1,158	7

TABLE No. 11—NON-PROTECTED BIRDS—MONTH OF JANUARY, 1896.

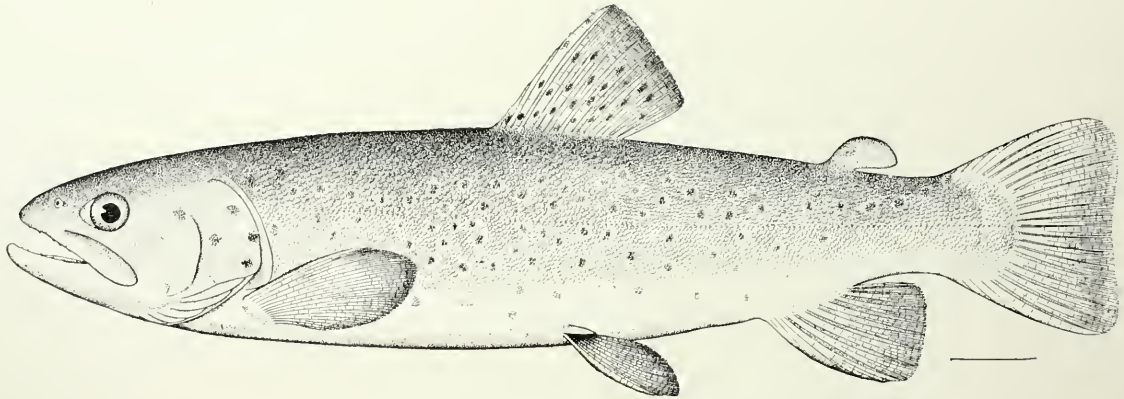
From County of—	Larks	Wild Pigeon	Common Snipe	English Snipe	Curlew	Plover	Gray Geese	White Geese	Brant	Honker	Swan	Crane	Bittern
Alameda		12	1	10									
Butte							23	2	59				
Calaveras	483	2											
Colusa							79	10	51	1	9		
Contra Costa	9			12	2		18	12	126	42		1	
Fresno			1	26			570	237	186	95	4	26	
Glenn							3		14				
Kern			127	86			8	1	21	1	1		
Kings				3			80	25	202	35		2	
Los Angeles			246	167	300	275	13	2					
Madera									2				
Merced	8		14	90	7		1,177	1,139	1,618	329	10	22	
Monterey		12		16			8			2			
Napa									1				
Orange			270	355	107	120	9	22					
San Benito				6			126						
San Joaquin			5	105			180	103	28	98		24	
San Luis Obispo		22	3	251									
San Mateo				3									
Santa Barbara				5				26					
Santa Clara				14									
Sacramento				161		51	110	70	2	12	8		16
Shasta				6									
Solano	9			262		3	462	379	190	216	17	17	
Sonoma	241	8	25	20						9			
Siskiyou				2			1						
Stanislaus	44	22	1	38			674	343	853	60	2	2	
Sutter							152	48	225	8	24		
Tulare	112	23		4		1	5	16	36	2		1	
Yolo	16	50		56	2		324	126	137	70	81	4	
Yuba				2			12	3		1			
Totals	922	151	693	1,700	418	450	4,034	2,564	3,751	881	156	99	16

TABLE No. 12—PROTECTED BIRDS—MONTH OF FEBRUARY, 1896.

From County of—	Canvas-back	Mallard	Sprig	Teal	Widgeon	Small Ducks	Gray Duck	Blackjack	Redhead	Butter-balls	Wood Ducks	Wiretails	Sheldrake	Quail	Doves	Rail
Butte	2	11	6	25	1	6										
Calaveras														712		
Colusa		3	162	4												
Contra Costa	48			1	2	4		2								
Fresno	1	240	476	448	114	18								195		
Glenn	3	6	102	6	2	2		1								
Kern		1	4	16										626		
Kings	7	160	209	124	36	54		9	5					20	116	
Mariposa		10	2													
Madera		2		4										5		
Merced	1	198	354	2,647	1,490	311								148		
Monterey														786		
Orange														297	48	
San Benito														164		
San Joaquin	2	591	341	266	253	104		1	5	1				26		
San Luis Obispo														1,085		
San Mateo														160		
Santa Cruz														205		
Sacramento	48	160	235	199	51	14		16	16	6	2			636		
Solano	93	425	508	269	86	24		129	36	27				105		
Sonoma														132		
Siskiyou		8		5	6											
Stanislaus		12	255	1,533	530	75								396		
Sutter	1	261	394	96	66	23										
Tulare		73	15	32	6	9								80	29	
Tuolumne														310		
Yolo	71	409	217	243	98	64		19	9					3		
Yuba		17	9	6	56											
Totals	277	2,587	3,389	5,924	2,797	708		177	71	34	2			6,091	193	

TABLE No. 13—NON-PROTECTED BIRDS—MONTH OF FEBRUARY, 1896.

From County of—	Larks	Wild Pigeon	Common Snipe	English Snipe	Curlew	Plover	Gray Geese	White Geese	Brant	Honker	Swan	Crane
Butte							71	40	6			
Calaveras	29											
Colusa							1					
Fresno			1				713	263	341	98	11	23
Glenn							16	1	2			
Kern							3					
Kings		15					223	18	444	19		
Mariposa								20	2	12	5	2
Madera							6					
Merced	19			21	2		1,744	2,211	2,037	188	9	49
Orange				28								
San Benito	8											
San Joaquin				278			48	2	1	2		2
San Luis Obispo		38		4		9						
Sacramento				21			6	2				
Solano							11	3	3	2		
Sonoma	20											
Stanislaus			57		2		201	446	299	105		9
Sutter							12	1	32			
Tulare	308						41	5	1			
Yolo				11			6	2	3	1	1	
Yuba							1		1			
Totals	384	53	58	363	4	9	3,103	3,014	3,172	427	26	85



GERMAN BROWN TROUT.—*Salmo fario.*

IN THE MATTER OF DUMPING SAWDUST INTO TRUCKEE RIVER.

BRIEF ON BEHALF OF THE PEOPLE OF THE STATE OF CALIFORNIA.

In the Supreme Court of the State of California.

THE PEOPLE OF THE STATE OF CALIFORNIA, upon the Information of W. F. FITZGERALD, Attorney-General of said State, *Respondent*,

vs.

THE TRUCKEE LUMBER COMPANY (a corporation), *Appellant*.

This action is brought by the People of the State of California, upon information of W.. F. Fitzgerald, Attorney-General, against defendant, to restrain it from committing a nuisance by placing and allowing to pass into the Truckee River, a stream of fresh water, stocked with fish, large quantities of sawdust, shavings, slabs, edgings, and other waste from its sawmill and box factory, situated upon said river, which it is alleged pollutes the water thereof and makes it unfit for use, and that said substances are poisonous to and kill and destroy the fish in said river.

At the time of filing the complaint, the Court granted a temporary injunction, restraining defendant from the commission of the acts complained of. Defendant interposed a demurrer to the complaint, and moved a dissolution of the injunction.

Upon hearing of the motion, the Court overruled the demurrer, and denied defendant's motion to dissolve the injunction.

This appeal is prosecuted from the order refusing to dissolve the injunction.

The points made by appellant may be summed up as follows:

First—That the facts alleged in the complaint do not constitute a public nuisance;

Second—That injunction is not the proper remedy;

Third—That the Attorney-General has no authority in law to maintain this action in the name of the People;

Fourth—That the protection of fish is exclusively entrusted to the Fish Commissioners and the criminal courts.

We will treat the first point mentioned from two points of view:

First—That the general public has a property interest in the fisheries of the State, and that the State is trustee for the people;

Second—That the owner of the soil has a special property in fish so long as they are in the water that flows over his land.

First—Right of fishery in the public.

(A) The principle involved here is the same as that which existed under the common law of England.

By the common law, all fish within the waters of the realm and all animals *feræ naturæ* belong to the King. The right of taking game, and free fishery, was a royal privilege—a franchise granted by the King to certain of his subjects.

The reason of this law was, that the King is the ultimate proprietor of all the lands in the kingdom; they being all held of him as the chief lord, or lord paramount of the fee; and that, therefore, he had the right of the universal soil, to enter thereon, and to chase and take such creatures at his pleasure; and also upon another maxim of the common law: that these animals are *bona vacantia*, and, having no other owner, belong to the King by his prerogative. (Blackstone's Com., Book II, pp. *39, *40, *415.)

The right of fishery as a prerogative is upon the same principle just cited.

The law of this country, so far as the principles involved in this case are concerned, is the same as the common law, to wit: that the original proprietorship of fish, and the right of fishery, are in the sovereignty of the States—the people themselves, who hold the fisheries in trust for the use of the public.

The sovereign power in the United States is in the people. (*Moore* vs. *Snow*, 17 Cal. 200; *Chisholm* vs. *Georgia*, 2 Dall. (A. S. Sup. C.), 471.)

Where the right of fishery existed in the King under the common law, that right exists in the people of the United States, and they, in their sovereign power, have the right to regulate the manner and method by which fish shall be taken, and may even prohibit the catching entirely, if they so elect, or may do any act in reference thereto.

From the earliest organization of our State government, the right to regulate and control the fisheries of the State was assumed by the Legislature, and this right has not, we think, been questioned.

As early as 1854, the Legislature passed an Act for the preservation of fish (salmon), declaring any weir, dam, or obstruction in any bay, strait, river, stream, creek, or slough of this State *to be a nuisance*. (Statutes 1854, p. 122.)

From that time down to the present, the Legislature has passed numerous Acts all tending to the preservation of fish within the State. Not only has the Legislature passed laws to protect the fish with which the streams were already stocked, but also large sums of public money have been expended in propagating fish and stocking the fresh-water streams of the State.

This right of control over the fisheries of the State by the Legislature is a recognition of the State's proprietary interest in and to the fish within its streams. If the authority vests in the State to enact laws for the preservation of the fish; if it can prohibit fishing in whole or in part; if it can expend public revenues for the propagation of fish, it is a recognition of the proprietary interest of the State in and to the fisheries.

It is obvious that anything which would injure or damage this proprietary interest of the State above set forth, and, as in this case, totally destroy the property, would be *a public nuisance.*

(B) The State holds the fisheries within its territory in trust for the public.

The State in its sovereign power holds the legal title to all fisheries within its borders in trust for the people. This is true as to the unnavigable as well as the navigable streams.

The same principle obtains as in the case of streams and the shores to high-water mark.

"Navigable streams and the shores to ordinary high-water mark are held by the State in trust for the public." (*Heckman* vs. *Street*, 99 Cal. 309–10.)

On the same principle, the State holds all highways, streets, etc., in trust for the people.

A trustee is a party in interest, and may maintain an action for an infraction of the rights of a beneficiary or damage to the property held in trust. (Section 369, Code of Civil Procedure; *Winters* vs. *Rush*, 34 Cal. 136; *Tyler* vs. *Houghton*, 25 Cal. 29; *West* vs. *Crawford*, 80 Cal. 19; *Walker* vs. *McCusker*, 71 Cal. 594; *Anson* vs. *Townsend*, 73 Cal. 419.)

Second—The owner of the soil has a special property in fish while in the water which flows over his land, and damage to or deprivation of that property right would be a nuisance, and, if affecting a number of persons, would constitute a *public* nuisance.

In order to constitute a public nuisance, it is not necessary to affect every person within the State, *but any considerable number of persons.*

Section 3480 of the Civil Code defines a public nuisance as one which affects an entire community—a neighborhood or *any considerable number of persons.*

In this case counsel concede that the acts complained of affect all owners of the soil along the stream, and as the complaint alleges the acts to be a public nuisance, and the complaint must be taken as true on this motion, it necessarily follows that a *considerable number of persons are affected.*

If the owners along the stream have a special property in the fish while in the water on their land, then the acts of the defendant con-

stitute a public nuisance, it affecting a *considerable number of persons.* (See the case of *People* vs. *Elk M. & L. Co.*, 107 Cal., p. 219.)

That was an action to restrain the defendant from causing a public nuisance by allowing waste, sawdust, etc., from its sawmill to pass into the stream, which polluted its waters. The Court say:

"The Court found that Elk River is not a navigable stream. It is contended that it follows from that fact that fouling its waters cannot constitute a public nuisance. But it is found that the waters of Elk River, at and below defendant's dam, were, and have been, and now are used by a considerable number of persons who resided along the banks of said stream below the defendant's mill and dam. This constitutes such a public use as would make a pollution of water by any unreasonable use, a public nuisance."

The Definition in the Code is not Exclusive of What Constitutes a Public Nuisance.

Counsel assume that the Code has not defined the act complained of in this action to be a public nuisance and because it has not done so, or because the common law is silent upon the subject, that, therefore, it is *not* a nuisance.

We answer this in two ways:

First—The acts alleged in the complaint come clearly within the definition of a public nuisance in Sections 3479 and 3480 of the Civil Code.

Section 3479, C. C., says: "Anything which is injurious to health, or is indecent or offensive to the senses, or *an obstruction to the free use of property,* * * * is a nuisance."

Section 3480, C. C., says: "A public nuisance is one which affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal."

What could be more explicit or applicable to the case at bar than this definition? The State, as has been shown, has a property interest in the fisheries within its borders, and the owners of the soil a right of property in the fish.

Defendant, by placing certain poisonous and deleterious substances in the Truckee River, is totally destroying the fish therein—the property of the plaintiff. This is not only "*an obstruction to the free use of the property,*" but is more—a destruction of the property itself. It cannot be maintained that a total destruction of property is not an obstruction to the free use of the property. As to what constitutes a considerable number of persons, see case of *People* vs. *Elk M. & L. Co.*, 107 Cal. 219.

Second—That, even though the acts complained of do not come within the definition of nuisance in the Code, yet the Code is not exclusive.

In other words, an act may constitute a nuisance, though not specifically defined to be such by the Code.

Following are some general definitions of nuisance:

"Nuisance, *nocumentum*, or annoyance, signifies anything that worketh hurt, inconvenience, or damage; and nuisances are of two kinds: public, or common nuisances, which affect the public, and are an annoyance to all the King's subjects." * * * (Blackstone's Commentaries, Book III, star page 216.)

"The term in legal phraseology is applied to that class of wrongs that arise from the unreasonable, unwarrantable, or unlawful use by a person of his own property, real or personal, or from his own improper conduct, working an obstruction of or injury to the right of another or of the public, and producing such material annoyance, inconvenience, discomfort, or hurt, that the law will presume a consequent damage." (Am. & Eng. En. of Law, Vol. 16, p. 924.)

Indeed, so numerous are the acts which might, under certain circumstances, constitute a nuisance, that it would be impossible for the statute to enumerate the same.

In the Am. & Eng. En. of Law (Vol. 16, p. 943), it is said "the variety of things, acts, and omissions which may constitute a nuisance is so great as to render an enumeration impossible; no particular combination of sources of annoyance being necessary to constitute a nuisance, and the possible sources of annoyances not being exhaustively defined by any rule of law."

Mr. Wood, in his work, aptly states the case, viz.:

"The question is not whether an act has been declared to be, but does it come within the idea of, a nuisance? If so, it is a nuisance, though never before held so; if not, it is not a nuisance, though held so in a thousand instances before." (Wood on Nuisances (3d ed.), Vol. I, Section 27.)

Counsel lay great stress upon the fact that there is a difference between navigable and unnavigable streams. We do not see that it makes any difference to the determination of this case.

If a dam or other obstruction should be placed in a stream, preventing fish from going up the stream, it would be a nuisance to the public. Why? Because it would prevent the fish from going to their spawning-grounds, and eventually exterminate them; because it would be depriving others of their property rights—the rights appendent to their lands—the fisheries thereon. It would deprive the riparian owner of his right to acquire property. Precisely the same principle is involved in this case. The result of respondent's acts is the total destruction of all fish in the stream below its mill, if not in the entire stream. This directly affects the public and deprives all persons on the stream below it of a vested property right.

A fishing privilege is a valuable consideration in addition to other riparian rights, and we ask what authority defendant has to so use its property that it may destroy the valuable rights and privileges of other persons? It could not do so with reference to any other species of property, and we know of no reason why it should be permitted to do so in this case.

It is a well-established principle of law that an owner of property must not use it, even in a lawful business, in such a manner as to interfere with another in the legitimate use of its property. (*Tuebner* vs. *California Street Railway Co.*, 66 Cal. 171.)

Suppose defendant, instead of placing the sawdust and refuse in the river and destroying the fish, had placed the same upon the land of other persons, we think it would not be seriously contended by counsel that such would not be a nuisance. The principle involved is no different in placing the same in a stream of pure water and killing the fish therein. In the instance cited, a nuisance is created, because it is a damage to property (his land), and obstructs the use of the same. In the case at bar, it is a nuisance because it is a damage to property rights (fishery).

Remedy—Injunction Will Lie.

Counsel contend that, because the Penal Code has made the acts complained of a misdemeanor, a suit in a court of equity will not lie. This contention is not well founded.

The mere fact that the statute makes a certain act a penal offense does not necessarily remove the case from the jurisdiction of a court of equity. The question to be determined is one of fact.

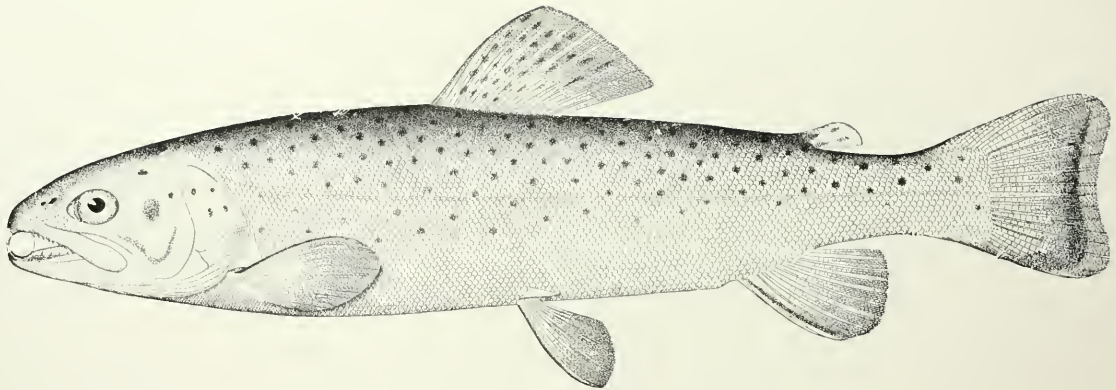
If the acts complained of constitute a nuisance in fact, equity will interpose to abate the further continuance of the same.

Section 3491 of the Civil Code provides: "That the remedies against a public nuisance are: (1) Indictment or information; (2) A civil action; (3) Abatement."

The courts of this State have decided the question several times. (See *Yolo Co.* vs. *City of Sacramento*, 36 Cal. 193; *People* vs. *Davidson*, 30 Cal. 380; *People* vs. *Gold Run D. & M. Co.*, 66 Cal. 150; Vol. 16 Am. & Eng. En. of Law, p. 940, and authorities there cited; Story on Equity Jurisprudence, Sections 921–3–4.)

In the case of *People* vs. *Gold Run D. & M. Co.*, *supra*, the Court hold: "Whenever an indictable nuisance exists there is a coördinate remedy in equity to abate it by injunction."

In the case of *Yolo County* vs. *City of Sacramento*, *supra*, the Court say: "If the dam is an obstruction to navigation, it is so far a public nuisance, for which the plaintiff cannot have a private action. In such cases the remedy is by indictment against the parties by whom the dam



Loch Leven Trout.—*Salmo trutta levnensis.*

was built; * * * or, perhaps, if the remedy is inadequate—that is to say, if there is imminent danger of irreparable mischief before the tardiness of the law can afford relief—equity may interpose and abate the nuisance upon the information of the Attorney-General."

In the Am. & Eng. En. of Law, cited *supra*, it is stated that: "The remedies for injuries or offenses of this character (nuisance and purprestures) are by indictment; by proceedings at law known as an information of intrusion, resulting in *abatement; and also in proceedings in equity for abatement and injunction on information of the Attorney-General*, and sometimes, but not usually or necessarily, at the relation of a private person."

Again, Story gives the law as follows (cited *supra*): "In regard to public nuisances, the jurisdiction of courts of equity seems to be of a very ancient date, and has been distinctly traced back to the reign of Queen Elizabeth. The jurisprudence is applicable not only to public nuisances, strictly so called, but also to purprestures upon public rights and property. * * * In cases of public nuisances, properly so called, an indictment lies to abate them, and to punish the offenders. *But an information also lies in equity to redress the grievance by way of injunction.*" * * * [The italics are by us.] "The ground of this jurisdiction by courts of equity in case of purpresture as well as of *public nuisances*, undoubtedly is their ability to give a more complete and perfect remedy than is attainable at law, in order to prevent irreparable mischief, and also to suppress oppressive and vexatious litigations. In the first place, they can interpose where the courts of law cannot to restrain and prevent such nuisances which are threatened or in progress, as well as to abate those already existing. In the next place, by a perpetual injunction, the remedy is made complete through all future time; whereas, an information or indictment at the common law can only dispose of the present nuisance; and for future acts new prosecutions must be brought. In the next place, the remedial justice in equity may be prompt and immediate, before irreparable mischief is done; whereas, at law nothing can be done, except after a trial and upon the award of judgment. In the next place, a court of equity will not only interfere upon the information of the Attorney-General, but also upon the application of private parties directly affected by the nuisance."

In such a case as this the two jurisdictions do not conflict. The law side of the court may be invoked in cases of past transgressions of the public's rights; the equity side exercises its jurisdiction to prevent future transgressions. Upon the law side of the court, an action will not lie until the injury is done. Equity will interpose to prevent the injury—the jurisdiction of the one operates upon past actions; the jurisdiction of the other extends over future actions.

The complaint in this action shows that respondent is placing refuse

timber from its sawmill and box factory in the Truckee River, which poisons the fish, and that unless restrained all the fish in the river will be wholly exterminated.

It would be a poor commentary upon the efficiency of our law, if, in such a case as this, we are refused a preventive remedy, and compelled to wait until all the fish shall have been killed—all the injury done—before the law will act.

Furthermore, in order to show that a civil remedy may be invoked in the case of public nuisance, where the commission of the same is made a penal offense, we call the Court's attention to the Penal and Civil Codes. Sections 370–1 of the Penal Code are substantially the same as Sections 3479 and 3480 of the Civil Code. Yet, notwithstanding the fact that the Penal Code makes the acts stated therein a penal offense, the Legislature has by the Civil Code given a civil remedy for the same wrongful acts, demonstrating conclusively that a civil remedy may be invoked, notwithstanding the fact that a criminal action will lie.

A criminal action is no bar to a civil suit. (Section 618 of Wharton's Criminal Law, and cases cited.)

Fish Commission has no Authority to Abate a Nuisance.

Counsel say that "the protection of fish in private streams is exclusively entrusted to the Fish Commissioners and the criminal courts."

We insist, first, that the Truckee River is not a private stream. It is one of the public rivers of this State.

It is a sufficient answer to this contention to say that no authority is given to the Fish Commissioners to abate a nuisance.

Their duties are to see that the laws for the preservation of fish and game are enforced. They have no other powers to this end than to invoke the aid of the courts. The Commissioners cannot judge of the guilt or punish offenders for the violation of the game and fish laws.

The authorities cited by counsel in support of their contention, is where a specific, sufficient, and adequate remedy is provided by statute, in which case such remedy is held exclusive.

Such is the law in this State in reference to matters where a plain and adequate remedy is provided. But the remedy must be sufficient and adequate to make it exclusive. In this case the Fish Commission can grant no relief—they can furnish no remedy whatever. Their only function in this regard is to see that the laws are enforced—not to enforce them themselves.

THE ATTORNEY-GENERAL IS AUTHORIZED TO MAINTAIN ACTIONS OF THIS CHARACTER IN THE NAME OF THE PEOPLE.

The People is the proper party on the complaint of the Attorney-General. (*People* vs. *Davidson*, 30 Cal. 388; *People* vs. *Gold Run, etc., Co.*, 66 Cal. 138, 56 Am. Rep. 80; *People* vs. *Pope*, 53 Cal. 437; *People* vs. *Blake*, 60 Cal., 497; *People* vs. *Reed*, 81 Cal. 70, Am. St. Rep. 22; *People* vs. *Hibernia Sav., etc., Society*, 84 Cal. 634; *People* vs. *Elk River M. & L. Co.*, 107 Cal. 215; *People* vs. *Beaudry*, 91 Cal. 220.)

The above are a few of the cases reported where actions have been brought in the name of the people to abate and restrain nuisances.

In the case of *A. G.* vs. *Shrewsbury Bridge Co.* (Eng. case), 21 C. D. 752, held, that where an illegal act is being committed, which in its nature tends to the damage of the public, the Attorney-General can maintain an action on behalf of the public to restrain the commission of the act without adducing any evidence of actual damage to the public; and the Court accordingly granted an injunction with costs, though no evidence of actual damage was given. (Brice on *Ultra Vires* (3d ed.), p. 761.)

Counsel attempts to draw a distinction between the Attorney-General bringing a suit in the name of the people on his own information and in bringing it on the relation of a private person.

There is no difference in its legal effect. The People is the party plaintiff and not the relator. The reason stated by counsel in their brief, to wit: that costs and expenses of suits could not be recovered against the State in case defendant was successful in such suit, and that by having a relator he would be responsible for costs, is not well founded. The State is liable for costs awarded against it, the same as a private individual.

The only object attained by bringing an action on the relation of a private person, is that the parties directly interested may be required to give the State security for costs; the bond is a protection to the State, not to the defendant.

Counsel seem to be under a misapprehension of the law in reference to security to the defendant afforded by a bond, according to their statement on page 22 of their brief.

The bond that may be required by the Attorney-General is simply for costs of suit—not for damages that may result by reason of the injunction. A relator would not be liable for such damages.

The authorities cited by counsel are not law now. The State and counties may be sued under existing statutes which make these decisions inapplicable to the case at bar.

To summarize upon this point, we state our former proposition that this is a public nuisance, and in either event—

First—If the State is the trustee of the fisheries within its borders, and the defendant is committing an unlawful act in destroying the same, the State, as such trustee, may maintain this action on complaint of the Attorney-General;

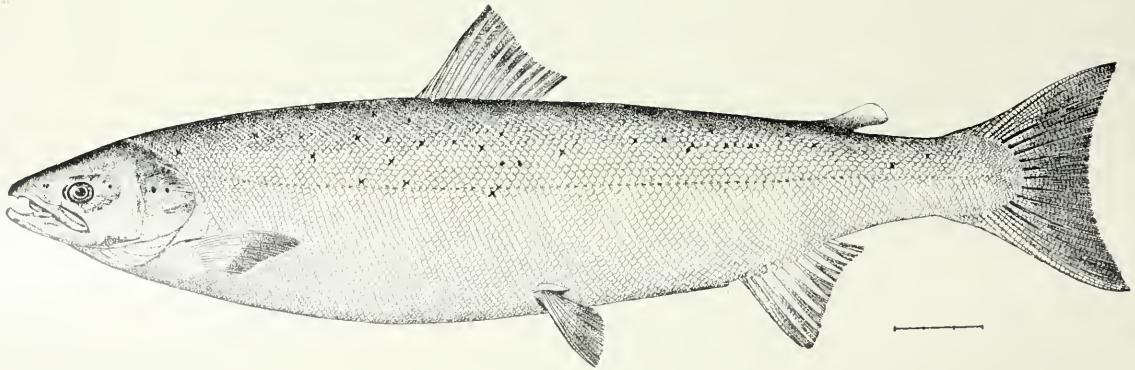
Second—If the riparian owners along this stream have a special property in the fish while in the waters on their land, the unlawful act of defendant is such an injury to their property rights as to constitute a public nuisance, and the People is the proper party in an action to abate the same.

We believe that it will not cause defendant any great injury or inconvenience to so arrange its mill and box factory as not to place the refuse, etc., in the river. We will close by using the language of the Court in the case of *Tuebner* vs. *California Street Railway Co.*, 66 Cal. 174, in which they say: "If the business be necessary or useful, it is always presumable that there is a proper place and a proper manner for carrying it on"; and we think in this case that no injustice will be done by restraining defendant from its unlawful act; but, on the contrary, if permitted to continue, great injustice and damage will be done to the public.

We respectfully submit that the judgment denying defendant's motion to dissolve the injunction should be affirmed.

W. F. FITZGERALD,
Attorney-General, and
HENRY E. CARTER,
Deputy Attorney-General,
Attorneys for Respondent.

San Francisco, May 15, 1896.



LANDLOCKED SALMON.—*Salmo salar sebago.*